

Workshop Manual

Fabia II 2007 ➤ , Fabia II 2009 ➤ ,
Octavia II 2004 ➤ , Octavia II 2010 ➤ ,
Roomster 2006 ➤ , Superb II 2008 ➤

1.9/77 kW TDI PD Engine

Engine ID	AXR	BJB	BKC	BLS	BSW	BXE			
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Edition 12.2015

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Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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00 – Technical data

1 Identification

(SRL000892; Edition 12.2015)

⇒ “1.1 Engine number”, page 1

⇒ “1.2 Engine characteristics (Octavia II, Superb II)”, page 1

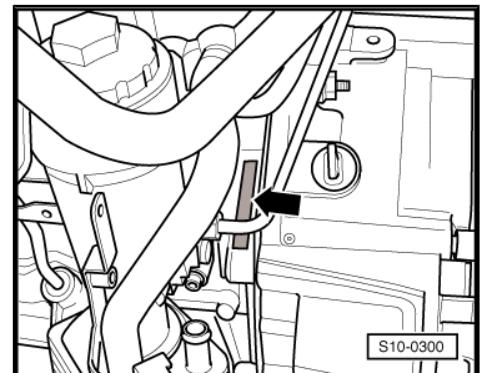
⇒ “1.3 Engine characteristics (Fabia II, Roomster)”, page 2

1.1 Engine number

The engine number (“engine identification characters” and “serial number”) is located at the engine directly on the joint separating engine/gearbox.

In addition, the (“engine identification characters” and the “serial number”) are indicated on the vehicle data sticker, which is located on the timing belt guard.

The engine identification characters are also indicated on the vehicle data stickers.



1.2 Engine characteristics (Octavia II, Superb II)

Engine identification characters	BJB	BKC	BXE	BLS
Manufactured	Octavia II 02.04 ➤ 12.10	08.04 ➤ 05.06	02.06 ➤ 12.10	05.06 ➤ 11.09
Superb II	----	----	03.08 ➤ 11.10	03.08 ➤ 09.10
Exhaust limit values conforming to	EU-3	EU-4	EU-4	EU-4
Displacement	1,896	1,896	1,896	1,896
Power output	kW at rpm 77/4000	77/4000	77/4000	77/4000
Torque	Nm at rpm 250/1900	250/1900	250/1900	250/1900
Bore	∅ mm 79,5	79,5	79,5	79,5
Stroke	mm 95,5	95,5	95,5	95,5
Number of cylinders / valves per cylinder	4 / 2	4 / 2	4 / 2	4 / 2
Compression	19,0 : 1	19,0 : 1	19,0 : 1	19,0 : 1
Firing order	1-3-4-2	1-3-4-2	1-3-4-2	1-3-4-2
Self-diagnosis	yes	yes	yes	yes
Catalytic converter	yes	yes	yes	yes
Exhaust gas recirculation	yes	yes	yes	yes
Cooling of exhaust gas recirculation	no	yes	yes	yes
Turbocharging	yes	yes	yes	yes
Charge air cooler	yes	yes	yes	yes
Diesel particle filter	no	no	no	yes

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1.3 Engine characteristics (Fabia II, Roomster)

Engine identification characters	AXR	BSW	BLS
Manufactured	Fabia II ----	04.07 ► 03.10	04.07 ► 03.10
	Roomster 03.06 ► 05.06	06.06 ► 03.10	11.06 ► 03.10
Exhaust limit values conforming to	EU-4	EU-4	EU-4
Displacement	I 1,896	1,896	1,896
Power output	kW at rpm 77/4000	77/4000	77/4000
Torque	Nm at rpm 240/1800-2200	240/1800-2200	240/1900
Bore	Ø mm 79,5	79,5	79,5
Stroke	mm 95,5	95,5	95,5
Cylinder / valves per cylinder	4 / 2	4 / 2	4 / 2
Compression	19,0 : 1	19,0 : 1	18,5 : 1
Firing order	1-3-4-2	1-3-4-2	1-3-4-2
Catalytic converter	yes	yes	yes
Exhaust gas recirculation	yes	yes	yes
Cooling of exhaust gas recirculation	yes	yes	yes
Turbocharging	yes	yes	yes
Charge air cooler	yes	yes	yes
Diesel particle filter	no	no	yes

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2 Safety instructions

⇒ “2.1 Regulations concerning safety precautions when working on the fuel system”, page 3

⇒ “2.2 Safety precautions when working on the fuel supply of the diesel direct injection system”, page 4

2.1 Regulations concerning safety precautions when working on the fuel system



WARNING

- ◆ On vehicles with engine with unit injectors, the temperature of the fuel lines or of the fuel can be up to 100 °C in an extreme case. Let the fuel cool down before opening the lines, as otherwise there is a high risk of burning.
- ◆ The fuel system is under pressure!
- ◆ Wear safety goggles and safety clothing, in order to avoid injuries and skin contact with fuel.
- ◆ Place cleaning cloths around the connection point before detaching cable connections. Reduce pressure by carefully removing the wiring.

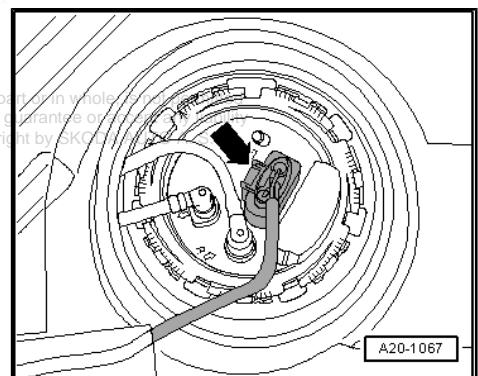
- ◆ The fuel delivery unit is activated when the ignition is switched on and by the door contact switch of the driver door. Before opening the fuel system and for reasons of safety, if the battery is not disconnected, the connector -arrow- must be disconnected from the fuel delivery unit.



WARNING

When undertaking all installation work, particularly in the engine compartment because of its cramped construction, please observe the following:

- ◆ Lay lines of all kinds (for example, for fuel, hydraulic fluid, cooling fluid and refrigerant, brake fluid, vacuum) and electrical lines in such a way that the original line guide is re-established.
- ◆ Ensure that there is adequate free access to all moving or hot components.



When removing and installing the fuel gauge sender from a full or partly filled fuel tank, pay attention to the following:

- ◆ The extraction hose of an exhaust extraction system which is switched on, must be positioned close to the assembly opening of the fuel tank in order to extract the released fuel vapours, even before the work is commenced. If no exhaust extraction system is available, a radial fan (motor not in air flow of fan) with a delivery volume of more than 15 m³/h must be used.
- ◆ Avoid skin contact with fuel! Wear fuel-resistant gloves!



2.2 Safety precautions when working on the fuel supply of the diesel direct injection system

If test and measuring devices are required during test drives observe the following:

- ◆ Always secure the test and measuring devices on the rear seat and have a second person operate them there.

If the test and measuring devices are operated from the passenger seat, the passenger could be injured by the release of the passenger airbag in the event of an accident.



WARNING

Secure the diagnostic device to the rear seat and operate from that position.

Observe the following points to prevent injury to persons and/or damage to the injection and preheating system:

- ◆ Disconnect and connect wires of the preheating and injection system as well as measuring device wires when the ignition is switched off.
- ◆ If the engine should be run at the starter speed without it actually igniting, then separate the central plug connection for the unit injector at the cylinder head.
- ◆ Before disconnecting the battery determine the code of the radio fitted with anti-theft coding.
- ◆ Always switch off the ignition before disconnecting and reconnecting the battery. Otherwise the engine control unit may be damaged.
- ◆ If the battery is disconnected and reconnected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .



3 Repair instructions

- ⇒ “3.1 Self-diagnosis”, page 5
- ⇒ “3.2 Supplementary instructions and assembly work on vehicles with an air conditioning system”, page 5
- ⇒ “3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system”, page 6
- ⇒ “3.4 Regulations concerning cleanliness when working on the exhaust gas turbocharger”, page 6
- ⇒ “3.5 General instructions for charge air system with exhaust turbocharger”, page 6
- ⇒ “3.6 Handling the ceramic glow plugs”, page 7

3.1 Self-diagnosis

This Rep.-Gr. is deleted.

For this use “Vehicle self-diagnosis”, “Measuring method” and “Fault finding” ⇒ Vehicle diagnostic tester.

3.2 Supplementary instructions and assembly work on vehicles with an air conditioning system



WARNING

Do not open the refrigerant circuit of the air conditioning system.



Note

In order to avoid damage to the condenser as well as to the refrigerant lines and hoses, ensure that the lines and hoses are not over-tensioned, kinked or bent.

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Steps which should be taken in order to remove and install the engine without opening the refrigerant circuit:

- Unscrew the holding clamp(s) on the refrigerant lines
- Removing the V-ribbed belt:
- ◆ Fabia II, Roomster
⇒ “1.4 Removing and installing V-ribbed belt (Fabia II, Roomster)”, page 41 .
- ◆ Octavia II, Superb
⇒ “1.2 Removing and installing V-ribbed belt (Octavia II, Superb II)”, page 36 .
- Remove AC compressor ⇒ Heating, Air Conditioning; Rep. gr. 87 .
- Mount the air conditioning compressor and the condenser in such a way that the refrigerant lines/hoses are not under tension.

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3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system

Carefully observe the following rules for cleanliness when working on the fuel supply/injection system:

- ◆ Thoroughly clean the connection points and their surroundings before releasing.
- ◆ Place removed parts on a clean surface and cover. Do not use fuzzy cloths!
- ◆ Carefully cover or close opened components if the repair is not completed immediately.
- ◆ Only install clean components: Only unpack replacement parts immediately prior to fitting. Do not use any parts which have been stored unwrapped (e.g. on a shelf or in a tool box).
- ◆ When the system is open: Avoid using compressed air whenever possible. Avoid moving the vehicle.
- ◆ Also make sure no diesel fuel runs onto the coolant hoses. If this is the case clean the hoses immediately. Replace immediately any hoses which have suffered damage.

3.4 Regulations concerning cleanliness when working on the exhaust gas turbocharger

Carefully observe the following rules for cleanliness when working on the exhaust turbocharger:

- ◆ Thoroughly clean the connection points and their surroundings before releasing.
- ◆ Place removed parts on a clean surface and cover. Do not use fuzzy cloths!
- ◆ Carefully cover or close opened components if the repair is not completed immediately.
- ◆ Only install clean components: Only unpack replacement parts immediately prior to fitting. Do not use any parts which have been stored unwrapped (e.g. on a shelf or in a tool box).
- ◆ When the system is open: Avoid using compressed air whenever possible. Avoid moving the vehicle.

3.5 General instructions for charge air system with exhaust turbocharger



WARNING

When undertaking all installation work, particularly in the engine compartment because of its cramped construction, please observe the following:

- ◆ Lay lines of all kinds (for example, for fuel, hydraulic fluid, cooling fluid and refrigerant, brake fluid, vacuum) and electrical lines in such a way that the original line guide is re-established.
- ◆ Ensure that there is adequate free access to all moving or hot components.



Caution

In case a mechanical damage to the exhaust gas turbocharger is found, for example, damage to the compressor wheel, it is not sufficient to only replace the turbocharger. In order to avoid consequential damage, perform the following tasks:

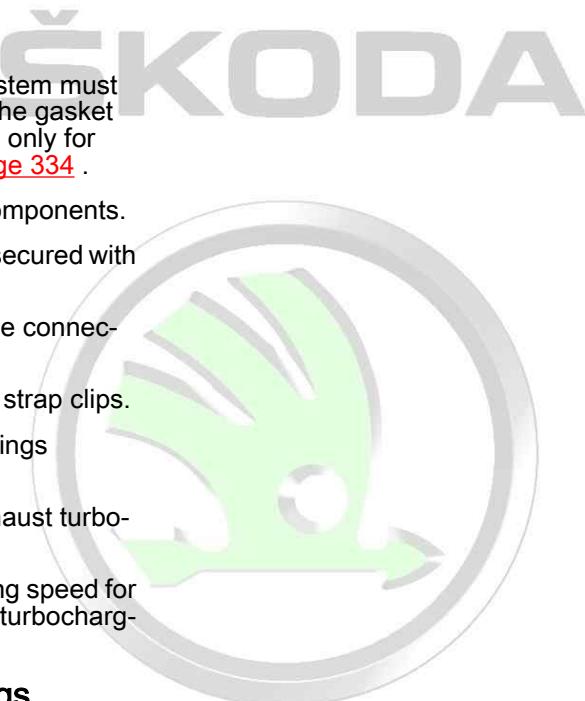
- ◆ Clean all oil lines.
- ◆ Change engine oil and oil filter.
- ◆ Check air filter housing, air filter element and charge air pipes as well as charge air hoses for soiling.
- ◆ Check all the air guides and the charge air cooler for foreign bodies.

If foreign bodies are detected in the charge air system, the complete charge-air routing must be cleaned and if necessary the charge air cooler must also be replaced.

- ◆ The charge-air system must be tight, check
[⇒ "2.12 Checking the charge-air system for leaktightness", page 335](#).
- ◆ Always replace self-locking nuts.
- ◆ Hose connections and hoses of the charge air system must be free of oil and grease before being installed. The gasket ring and the sealing surface must be slightly oiled only for push-fit couplings [⇒ "2.11 Hose connections", page 334](#).
- ◆ Observe assembly markings on the hoses and components.
- ◆ All hose connections of the charge air system are secured with spring strap clamps or push-fit couplings.
- ◆ Only install approved clamps for securing the hose connections ⇒ Electronic Catalogue of Original Parts .
- ◆ Use pliers for spring strap clamps to fit the spring strap clips.
- ◆ Assembly of hose connections with push-fit couplings
[⇒ "2.11 Hose connections", page 334](#).
- ◆ Before screwing down the oil feed line, fill the exhaust turbocharger via the connection fitting with engine oil.
- ◆ After installing the turbocharger, run engine at idling speed for about 1 minute to ensure that oil is supplied to the turbocharger.

3.6 Handling the ceramic glow plugs

For ceramic glow plugs the following points must be observed:
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Note

- ◆ *The ceramic glow plugs are very fragile due to the used component materials and require utmost care when removing and installing. When removing and installing it is essential to carry out the specified work sequence
⇒ "1.2 Removing and installing ceramic glow plugs", page 427 .*
- ◆ *The original transport packaging must be used for transport and storage of the ceramic glow plugs or if the ceramic glow plugs are packed in foils with insulated air cushions.*
- ◆ *Remove ceramic glow plugs from their wrapping immediately before fitting.*
- ◆ *The pins of the ceramic glow plugs are very sensitive to impacts and flexion. For this reason never use ceramic glow plugs that have been dropped from a low height (approx. 2 cm). Although no exterior damage is visible, dangerous hairline cracks can nevertheless be present.*
- ◆ *Damage or breakage of the ceramic glow plug pin may cause major engine damage.*
- ◆ *Always replace the ceramic glow plugs in case of doubt regarding the proper state.*
- ◆ *In case of breakage of the ceramic glow plug pin all broken pieces must be removed from the cylinder before starting the engine, otherwise this could result in engine damage due to seizures.*
- ◆ *The ceramic glow plugs must not be removed from the cylinder head for testing the compression pressure.*
- ◆ *Always perform the compression pressure test on installed ceramic glow plugs in the function "Targeted fault finding"
⇒ Vehicle diagnostic tester.*
- ◆ *The software version of the engine control unit is matched to the glow plug type (ceramic or metal), therefore only the relevant glow plugs must be installed.*
- ◆ *Changing the ceramic glow plugs to metal glow plugs, or vice versa, is not permissible.*

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10 – Removing and installing engine

1 Removing and installing engine

- ⇒ “1.1 Removing (Octavia II, Superb II)”, page 9
- ⇒ “1.2 Removing (Fabia II, Roomster)”, page 15
- ⇒ “1.3 Securing the engine to the assembly stand”, page 19
- ⇒ “1.4 Installing (Octavia II, Superb II)”, page 20
- ⇒ “1.5 Installing (Fabia II, Roomster)”, page 25
- ⇒ “1.6 Checking and adjusting the assembly bracket (Superb II)”, page 29
- ⇒ “1.7 Checking and adjusting the assembly bracket (Octavia II)”, page 32

1.1 Removing (Octavia II, Superb II)

Special tools and workshop equipment required

- ◆ Catch pan , e.g. -VAS 6208-
- ◆ Engine/gearbox jack , e.g. -V.A.G 1383/A-
- ◆ Pliers for spring strap clamps
- ◆ Double ladder
- ◆ Engine mount - T10012-
- ◆ Wire



Note

- ◆ *The engine is removed downwards together with the gearbox.*
- ◆ *All cable straps that have been loosened or cut open when the engine was removed must be attached again in the same location when the engine is installed again.*
- ◆ *Collect drained coolant in a clean container for proper disposal or reuse.*



Caution

When undertaking all installation work, particularly in the engine compartment because of its cramped construction, please observe the following:

- ◆ *Lay lines of all kinds (for example, for fuel, hydraulic fluid, cooling fluid and refrigerant, brake fluid, vacuum) and electrical lines in such a way that the original line guide is re-established.* Authorised by ŠKODA AUTO A. S. ŠKODA AUTO A. S. does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by ŠKODA AUTO A. S. ©
- ◆ *In order to avoid damage to the cables, ensure that there is adequate free access to all moving or hot components.*

Observe all safety measures and notes for assembly work on the fuel supply and injection system, at the charge air system and observe as well the rules for cleanliness
 ⇒ “2 Safety instructions”, page 3 .

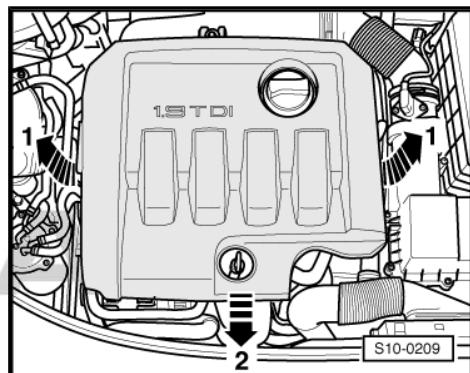


- Lift the engine cover at the sides -arrows 1- and pull out towards the front -arrow 2-.
- Remove air filter and intake air duct
[⇒ "1.4 Summary of components - air filter \(Octavia II, Superb II\)", page 364 .](#)



WARNING

Observe measures when disconnecting the battery ⇒ Electrical System; Rep. gr. 27 .



- Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .
- Remove cover and bulkhead plenum chamber ⇒ Body Work; Rep. gr. 66 .
- Remove both front wheels ⇒ Chassis; Rep. gr. 44 .
- Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
- Remove the front right and left wheelhouse liner ⇒ Body Work; Rep. gr. 66 .



WARNING

Hot steam or hot coolant may escape when the compensation bottle is opened. Cover the cap with a cloth and open carefully.

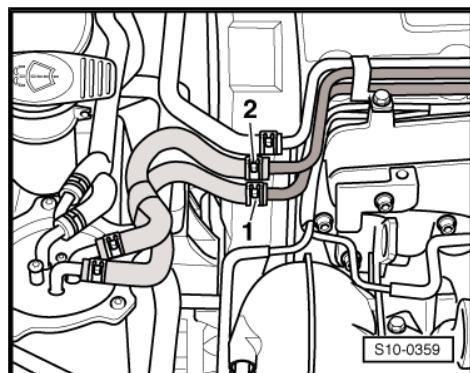
- Drain coolant
[⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205 .](#)
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WARNING

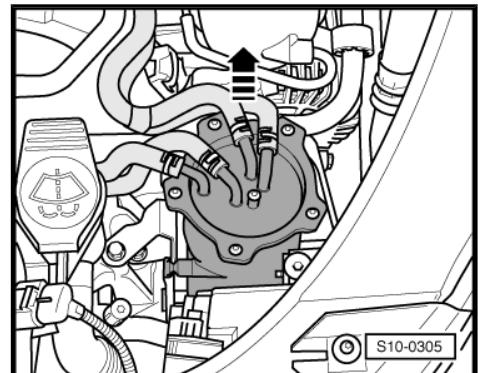
- ◆ *On vehicles with engine with unit injectors, the temperature of the fuel lines or of the fuel can be up to 100 °C in an extreme case. Let the fuel cool down before opening the lines, as otherwise there is a high risk of burning.*
- ◆ *Wear protective gloves.*
- ◆ *Wear safety goggles.*

- Detach coolant hose, fuel intake hose -2- and fuel return-flow hose -1- from pipes at cylinder head.



**For the vehicles Octavia II up to 08.05**

- Unlatch fuses, remove fuel filter with its connected lines upwards from bracket -arrow- and lay to the side.



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For Octavia II vehicles as of 08.05 and Superb II vehicles.

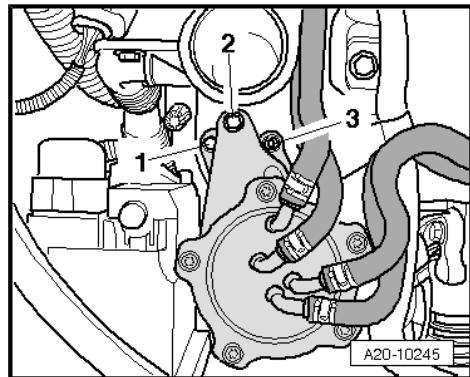
- Release screw -1- by one turn.
- Release screw -2- and nut -3-.
- Take out fuel filter with connected hoses and lay to the side.

Continued for all vehicles



Note

Mark the direction of rotation with chalk or a felt-tip pen before removing the V-ribbed belt. Reversing the rotation direction of an already used belt may destroy it.



- Remove V-ribbed belt
[⇒ "1.2 Removing and installing V-ribbed belt \(Octavia II, Superb II\)", page 36](#).
- Remove alternator ⇒ Electrical System; Rep. gr. 27 .

For vehicles with air conditioning



WARNING

Do not open the refrigerant circuit of the air conditioning system.



Note

In order to avoid damage to the AC compressor as well as to the refrigerant lines and hoses, ensure that the lines and hoses are not over-tensioned, kinked or bent.

- Remove AC compressor ⇒ Heating, Air Conditioning; Rep. gr. 87 .
- Tie up removed AC compressor with connected refrigerant hoses to the body.

Continued for all vehicles

- Remove charge air hoses and charge air pipe between engine and charge air cooler:

- ◆ Octavia II
[⇒ "2.6 Removing and installing parts of the charge air cooler \(Octavia II\)", page 326](#)
- ◆ Superb II
[⇒ "2.5 Removing and installing parts of the charge air cooler \(Superb II\)", page 324](#)

- Remove fan shroud and radiator
[⇒ "2.3 Removing and installing radiator \(Octavia II, Superb II\)", page 222](#) .

For vehicles with auxiliary heating

- Separate coolant hoses on the auxiliary heating.
- Remove exhaust pipe of auxiliary heating (only for vehicles with extended exhaust pipe) ⇒ Heating, Air Conditioning; Rep. gr. 82 .

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Continued for all vehicles

- Remove drive shaft to the right ⇒ Chassis; Rep. gr. 40 .
- Unscrew left drive shaft from the flange shaft of the gearbox and tie up.
- Unscrew screws -1 ... 33- and remove pendulum support.

Vehicles with four-wheel drive

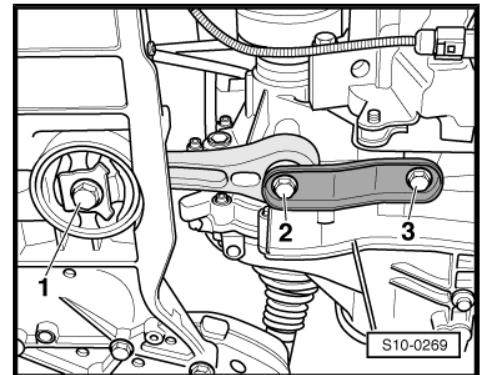
- Remove the assembly carrier ⇒ Chassis; Rep. gr. 40 .
- Remove propshaft from gearbox ⇒ Chassis; Rep. gr. 39 .

Continued for all vehicles

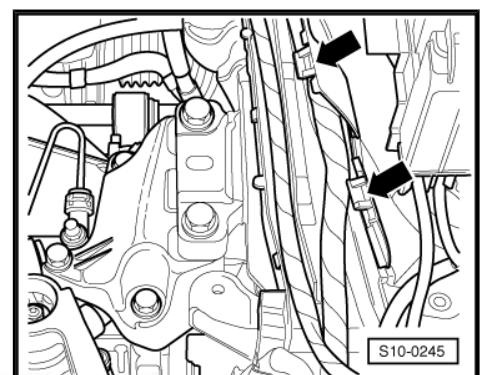


Note

The decoupling element in the pre-exhaust pipe should not be bent by more than 10° - risk of damage.



- Remove the pre-exhaust pipe from the exhaust turbocharger
⇒ [“1 Removing and installing parts of the exhaust system”, page 380](#) .
- Unlatch the fuse and disconnect the plug from the engine control unit, open the cable guides -arrows-, remove the engine wiring harness and lay to the side.
- Release all remaining plugs at engine and gearbox and lay aside the relevant lines.
- Unclamp all connecting, coolant, vacuum and suction hoses from the engine.
- Remove shift mechanism from gearbox ⇒ Chassis; Rep. gr. 34 .
- Remove hydraulic clutch control from gearbox ⇒ Chassis; Rep. gr. 34 .



WARNING

After removing the slave cylinder or after separating the hydraulic line, do not depress the clutch pedal.

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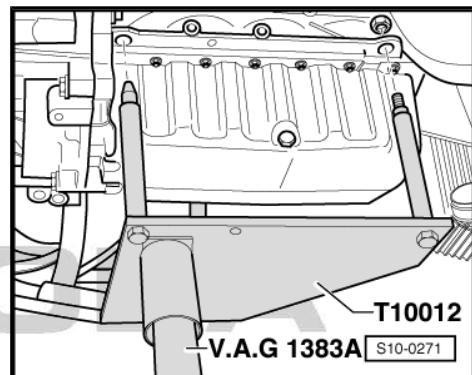


- Screw on -T10012- engine mount to the cylinder block with fixing nut and bolt. Tighten screw M10 x 25/8.8 to approx. 40 Nm.

Note

The studs must be screwed onto the engine mount -T10012-, as shown in the figure. The stud with the thread must be positioned on the gearbox side.

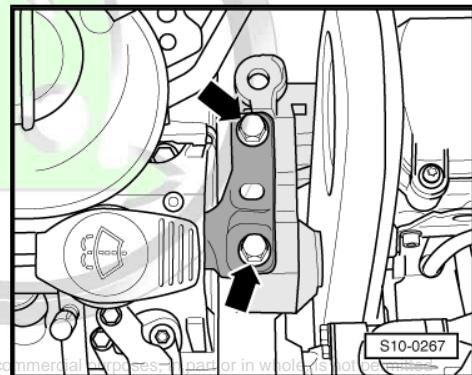
- Insert engine/gearbox jack at engine mount -V.A.G 1383/A- (e.g. -T10012-) and slightly raise.



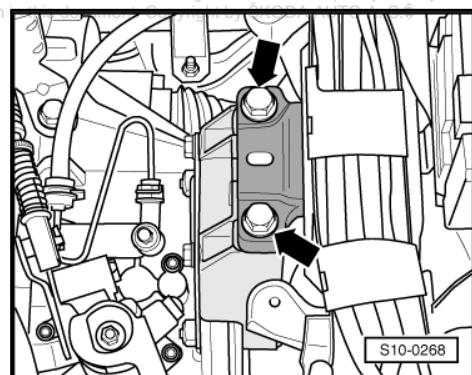
Note

Use the double ladder to release the screws for the assembly bracket.

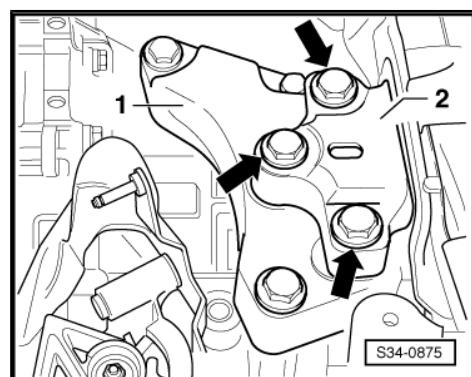
- Successively release screws for assembly bracket at engine -arrows-.



- Successively release screws at gearbox 0A4 -arrows- or ...



- ... at gearbox 02Q -arrows- or ...



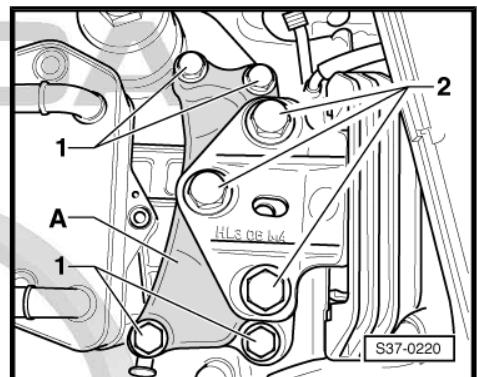


- ... at gearbox 02E -2-.



Note

- ◆ Check whether all hose and line connections between engine, gearbox and body are released.
- ◆ When lowering carefully guide the engine/gearbox jack unit, in order to avoid damage.
- ◆ Ensure adequate clearance to the AC compressor or especially ensure free passage between drive shaft and turbocharger.



- First of all slightly lower the engine/gearbox unit. Then push engine/gearbox unit forwards and only then lower further.
- Remove the gearbox from the engine ⇒ gearbox; Rep. gr. 34 .

1.2 Removing (Fabia II, Roomster)

Special tools and workshop equipment required

- ◆ Catch pan , e.g. -VAS 6208-
- ◆ Engine/gearbox jack , e.g. -V.A.G 1383/A- Note: Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by ŠKODA AUTO A. S. ŠKODA AUTO A. S. does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by ŠKODA AUTO A. S.
- ◆ Pliers for spring strap clamps
- ◆ Double ladder
- ◆ Engine mount - T10012-
- ◆ Wire



Note

- ◆ The engine is removed downwards together with the gearbox.
- ◆ All cable straps that have been loosened or cut open when the engine was removed must be attached again in the same location when the engine is installed again.
- ◆ Collect drained coolant in a clean container for proper disposal or reuse.

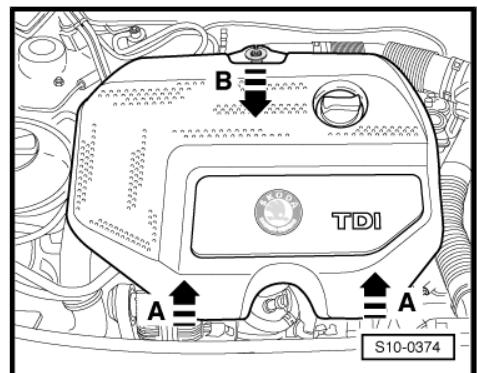
- Lift the engine cover at the sides -arrows A- and pull out towards the front -arrow B-.



WARNING

Observe measures when disconnecting the battery ⇒ Electrical System; Rep. gr. 27 .

- Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .
- Remove air filter with intake hose and hose to turbocharger ⇒ [“1.6 Removing and installing air filter \(Fabia II, Roomster\)”, page 367](#) .



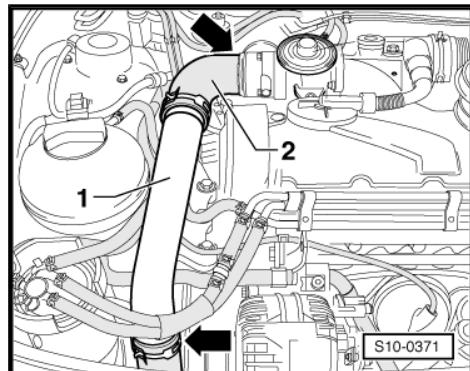


- Remove charge-air pipe at the top -1- with connecting hose -2- -arrows-.
- Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
- Detach the right front wheel ⇒ Chassis; Rep. gr. 44 .
- Remove the right wheelhouse liner ⇒ Body Work; Rep. gr. 66 .



WARNING

Hot steam or hot coolant may escape when the compensation bottle is opened. Cover the cap with a cloth and open carefully.



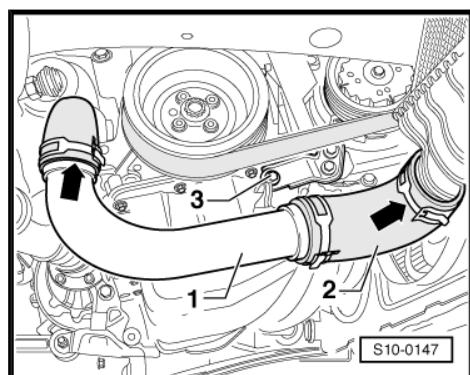
- Drain coolant
⇒ [“1.7 Draining and filling coolant \(Fabia II, Roomster\)”, page 208](#) .

For engine with engine code AXR, BSW

- Release screw -3- and remove bottom charge air pipe -1- with connecting hose -2- -arrows-.
- Remove charge air pipe from exhaust turbocharger to charge air cooler
⇒ [“2.7.1 Summary of components for engine with identification characters AXR, BSW”, page 329](#) .

For engine with engine code BLS

- Remove charge air pipe from exhaust turbocharger to charge air cooler
⇒ [“2.7.2 Summary of components for engine with identification characters BLS”, page 330](#) .



Continued for all vehicles

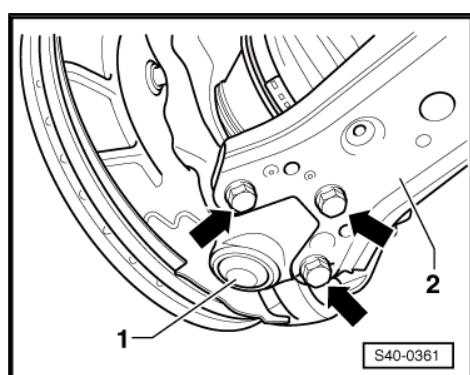
- Unscrew screws -arrows- for left steering joint ⇒ Chassis; Rep. gr. 40 .



Note

After installing the screws carry out the axial measurement ⇒ Chassis; Rep. gr. 44 .

- Remove right drive shaft from the gearbox. Then swivel out drive shaft and secure below front bumper with wire, outside the engine compartment ⇒ Chassis; Rep. gr. 40 .
- Remove left drive shaft from gearbox and secure with wire ⇒ Chassis; Rep. gr. 40 .



For engine with engine code AXR, BSW

- Remove pre-exhaust pipe with catalytic converter
⇒ [“1.4.1 Summary of components for engine with identification characters AXR, BSW”, page 393](#) .

For engine with engine code BLS

- Remove pre-exhaust pipe with diesel particle filter
⇒ [“1.4.2 Summary of components for engine with identification characters BLS”, page 394](#) .

Continued for all vehicles



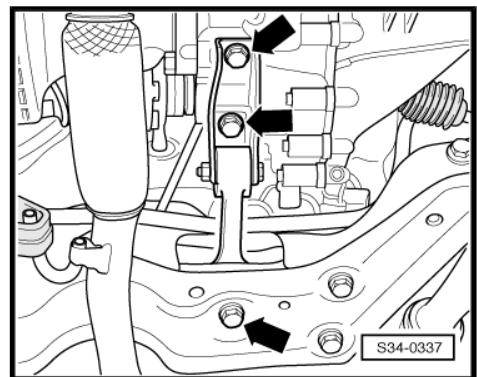
- Unbolt the pendulum support -arrows-.
- Remove holder for electric installation at the bottom from the gearbox.
- Remove V-ribbed belt
 ⇒ “1.4 Removing and installing V-ribbed belt (Fabia II, Roomster)”, page 41 .
- Remove fan shroud from radiator
 ⇒ “2.4 Removing and installing radiator (Fabia II, Roomster)”, page 223 .
- Remove alternator ⇒ Electrical System; Rep. gr. 27 .

For vehicles with air conditioning



WARNING

Do not open the refrigerant circuit of the air conditioning system.



S34-0337



Note

In order to avoid damage to the AC compressor as well as to the refrigerant lines and hoses, ensure that the lines and hoses are not over-tensioned, kinked or bent.

- Remove the AC compressor from the bracket for auxiliary units ⇒ Heating, Air Conditioning; Rep. gr. 87 .

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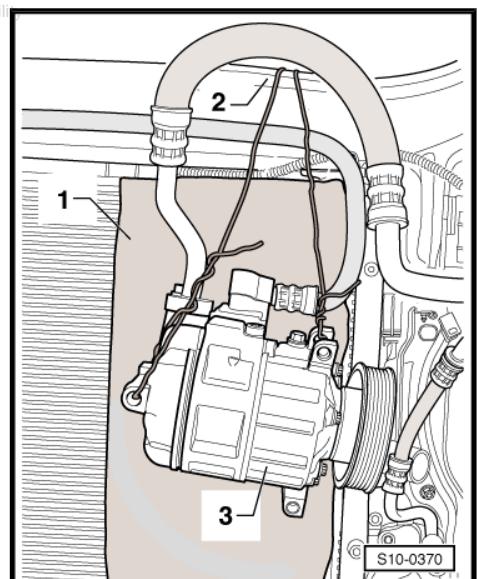
- Attach AC compressor -3- e.g. to radiator grill in accordance with the figure. As protection put a sheet of cardboard -1- on the radiator wall.



Note

Avoid damage to the radiator.

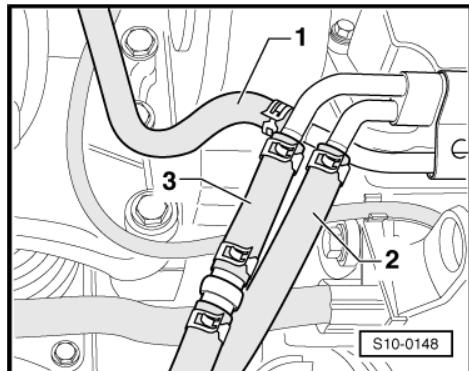
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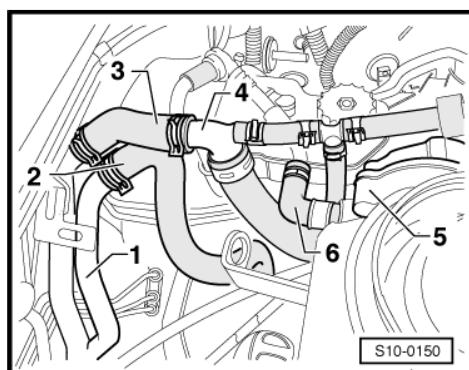
S10-0370



- Disconnect the coolant hose -1- from the cylinder head.
- Disconnect the fuel intake hose -3- and the fuel return hose -2- from the pipes.



- Remove the coolant feed hose -3- from the supports -4-.
- Remove the coolant return hose -2- from the heat exchanger connection fittings -1-.
- Pull off vacuum hose -6- from tandem pump -5-.
- Unclamp all remaining connecting, coolant, vacuum and suction hoses from the engine.
- Release all remaining plugs at engine and gearbox and lay aside the relevant lines.

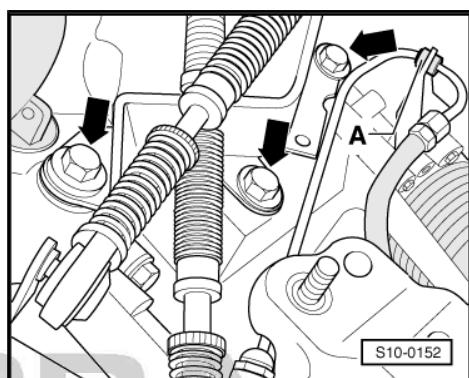


- Remove Bowden cable support -arrows-.
- Pull out slave cylinder line -A- from the holder on the gearbox.
- Remove shift mechanism from gearbox ⇒ Gearbox; Rep. gr. 34 .
- Remove the clutch slave cylinder from the gearbox ⇒ Gearbox; Rep. gr. 30 .



WARNING

After removing the slave cylinder, do not operate the clutch pedal.

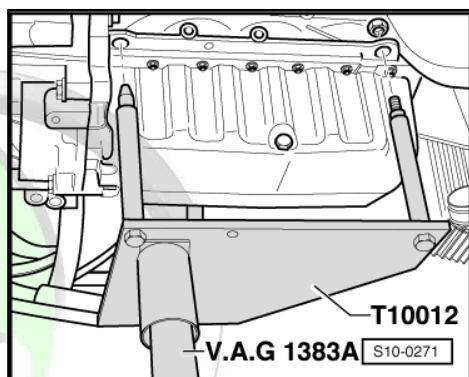


- Screw engine mount -T10012- to the cylinder block with fixing nut and bolt. Tighten screw M10 x 25/8.8 to approx. 40 Nm.
- Insert engine/gearbox jack at engine mount -V.A.G 1383 A- (e.g. -T10012-) and slightly raise.



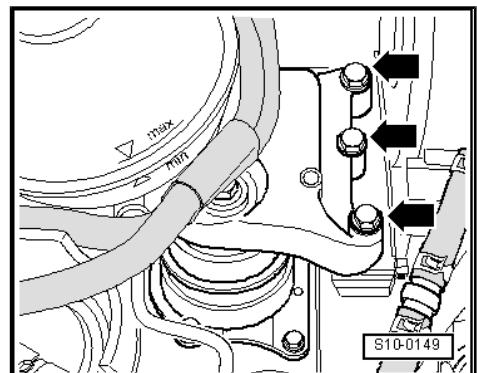
Note

Use the double ladder to release the screws for the assembly bracket.





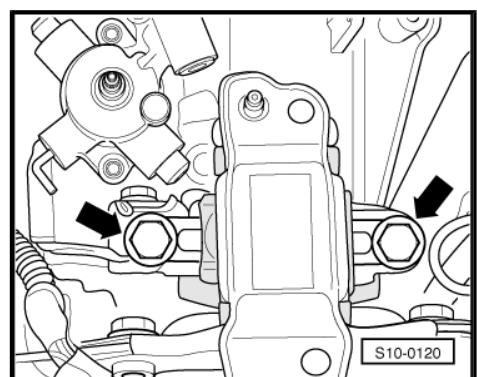
- Release the screws which connect the engine mount with the engine support -arrows-.



- Unscrew the gearbox mount from the gearbox support -arrows-.

Note

- ◆ Check whether all hose and line connections between engine, gearbox and body are released.
- ◆ When lowering carefully guide the engine/gearbox jack unit, in order to avoid damage.
- ◆ The engine and gearbox unit must be carefully guided during withdrawal. Ensure adequate clearance to other components. Particularly from the AC compressor.



- First of all slightly lower the engine/gearbox unit. Then push engine/gearbox unit forwards to the radiator and only then lower further.
- Remove the gearbox from the engine ⇒ gearbox; Rep. gr. 34 .

1.3 Securing the engine to the assembly stand

Note

The engine and gearbox support - VAS 6095- or assembly stands - MP 9-101- with engine mount - MP 1-202- for the attachment.

Attach engine attached to engine and gearbox mount - VAS 6095-

Special tools and workshop equipment required

- ◆ Engine and gearbox mount - VAS 6095-
- ◆ Lifting device - MP9-201 (2024 A)-
- ◆ Workshop crane , e.g. -VAS 6100-
- Separate engine from gearbox.



WARNING

Use securing pins on the hooks and rig pins to prevent release.

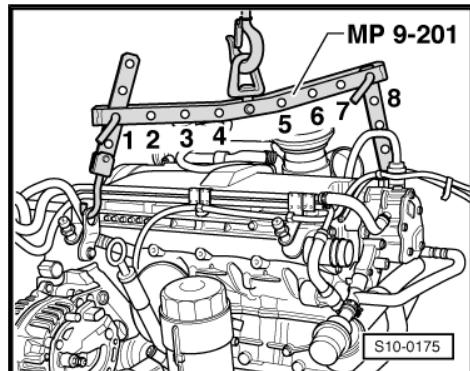


- Attach lifting device -MP9-201 (2024 A)- at engine and at workshop crane (e.g. -VAS 6100-).

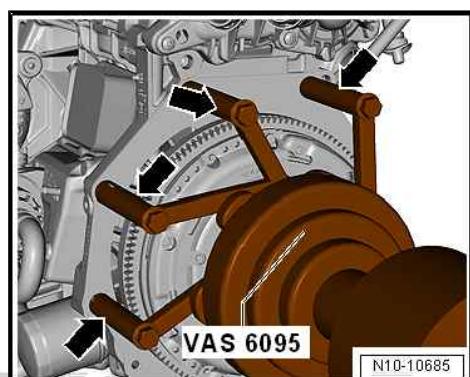
On the belt pulley side: 2. Hole of the extension in Position 1

On the flywheel side: 4. Hole of the extension in Position 8

- Lift off engine with installed engine mount -T10012- with workshop crane (e.g. -VAS 6100-) from engine/gearbox jack.
- Remove engine mount -T10012- .



- Secure engine using bolts -arrows- to the engine and gearbox mount - VAS 6095- .



1.4 Installing (Octavia II, Superb II)

- Mount engine onto engine mount -T10012- .

Install in the reverse order of removal. When doing this, note the following:



Note

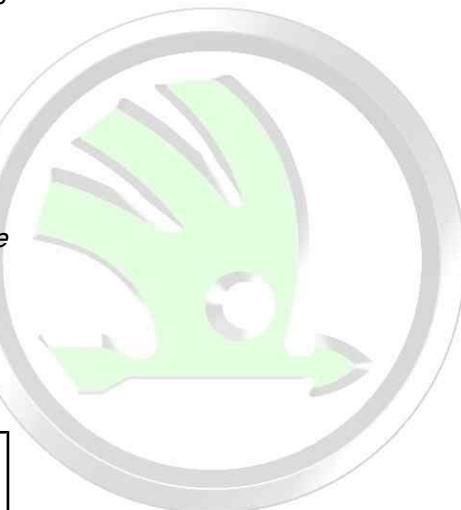
- ◆ Replace the self-locking nuts and screws when undertaking assembly work.
- ◆ Replace screws which have been tightened to a torquing angle as well as gasket rings and seals.
- ◆ All cable straps should be fitted on again in the same place when installing.
- ◆ Secure all hose connections with corresponding hose clips.



Caution

When undertaking all installation work, particularly in the engine compartment because of its cramped construction, please observe the following:

- ◆ Lay lines of all kinds (e.g. for fuel, hydraulic fluid, cooling fluid and refrigerant, brake fluid, vacuum) and electrical lines in such a way that the original line guide is re-established.
- ◆ In order to avoid damage to the cables, ensure that there is adequate free access to all moving or hot components.





For vehicles with manual gearbox 0A4 or 02Q



Note

- ◆ Clean the serration on the drive shaft and if the clutch discs have been used clean the hub serration, remove corrosion and only apply a very thin layer of grease - G 000 100-. Subsequently move the clutch disc up and down on the drive shaft until the hub fits smoothly on the shaft. Always remove excess grease.
- ◆ After installing the coupling, check the centering of the clutch disc ⇒ *Gearbox; Rep. gr. 34*.
- ◆ Inspect clutch release. Replace bearing if worn ⇒ *Gearbox; Rep. gr. 34*.

For vehicles with automatic gearbox 02E



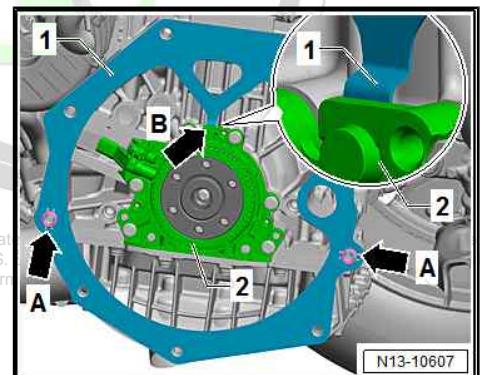
Note

- ◆ Check bearing for drive shaft pin in the crankshaft. Replace bearing if worn
 ⇒ *"3.2.1 Replacing the needle bearing for crankshaft (Octavia II, Superb II)", page 95*.
- ◆ Lubricate bearing and drive shaft pin with a thin layer of high temperature grease -G 052 133 A2-. Do not grease the serration of the drive shaft.

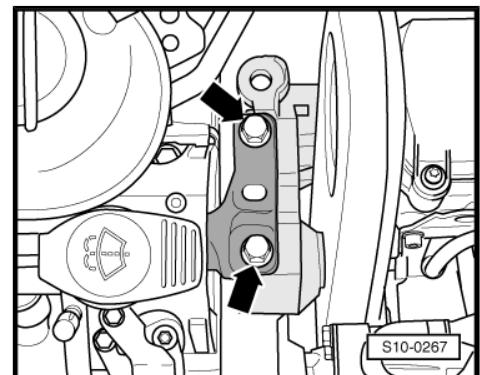
Continued for all vehicles

- Check whether the dowel sleeves for centering the engine/gearbox are present in the cylinder block; insert if necessary.
- Ensure that the intermediate plate -1- has been inserted on the sealing flange -arrow B- and is pushed onto the dowel sleeves -arrows A-.
- Screw on gearbox to engine ⇒ [page 24](#) .
- Insert engine/gearbox assembly in the body.

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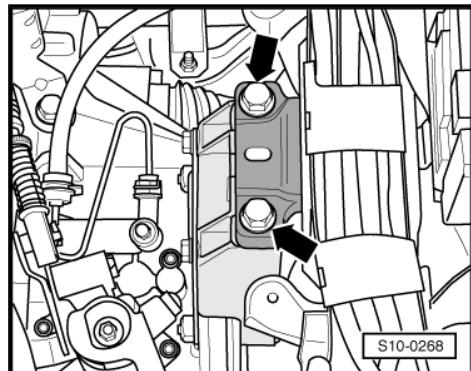


- Successively screw in screws for assembly bracket at engine -arrows-.





- Successively release screws at gearbox 0A4 -arrows- or ...



- ... at the gearboxes 02Q or 02E -arrows-.



Note

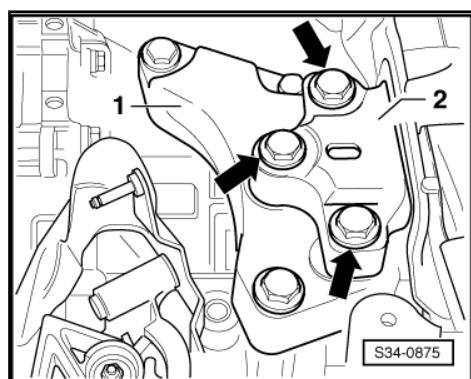
Use new screws for attaching. First tighten the screws by hand, after aligning the assembly bracket tighten the screws to a final torque.

- Remove engine mount -T10012- from engine.

Vehicles with four-wheel drive

- Attach propshaft to gearbox ⇒ Gearbox; Rep. gr. 39 .
- Install the assembly carrier ⇒ Chassis; Rep. gr. 40 .

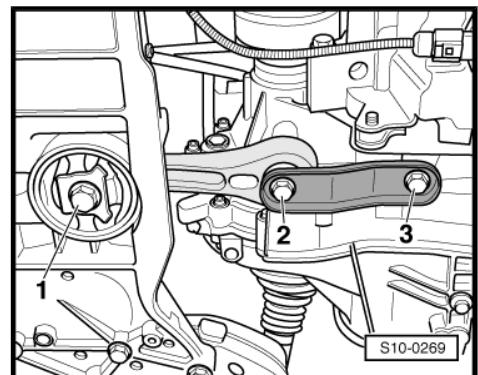
Continued for all vehicles



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- Tighten pendulum support with screws -1 ... 3- at gearbox and at assembly carrier. Use new screws for attaching.
- Install drive shafts on gearbox ⇒ Chassis; Rep. gr. 40 .
- Install exhaust system and align free of stress:
 - ◆ Octavia II
⇒ [“1.12 Aligning exhaust system free of stress \(Octavia II\)”, page 409](#) .
 - ◆ Superb II
⇒ [“1.11 Fitting exhaust system free of stress \(Superb II\)”, page 408](#) .



For vehicles with manual gearbox 0A4 or 02Q

- Install and bleed hydraulic clutch control ⇒ gearbox; Rep. gr. 30 .

Continued for all vehicles

- Attach the shift mechanism to the gearbox and adjust ⇒ Gearbox; Rep. gr. 34 .
- Install radiator and fan
⇒ [“2.5 Removing and installing fan shroud for radiator fan V7 and V177 \(Octavia II, Superb II\)”, page 225](#) .

On vehicles with air conditioning

- Install AC compressor ⇒ Heating, Air Conditioning; Rep. gr. 87 .

Continued for all vehicles

- Install alternator ⇒ Electrical System; Rep. gr. 27 .
- Install the V-ribbed belt
⇒ [“1.1 Summary of components - V-ribbed belt \(Octavia II, Superb II\)”, page 34](#) .
- Observe the assembly instruction for hose connections with push-fit couplings ⇒ [page 334](#) .
- Adjusting the assembly bracket:
 - ◆ Octavia II ⇒ [“1.7.2 Adjusting the unit mounting”, page 32](#) .
 - ◆ Superb II ⇒ [“1.6.2 Adjusting the unit mounting”, page 30](#) .
- Connect electrical connections and attach cables ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Install battery ⇒ Electrical System; Rep. gr. 27 .
- Install bulkhead plenum chamber and plenum chamber cover ⇒ Body Work; Rep. gr. 66 .
- Install wiper arms ⇒ Electrical System; Rep. gr. 92 .
- Install the noise insulation ⇒ Body Work; Rep. gr. 50 .
- Install the front right and left wheelhouse liner ⇒ Body Work; Rep. gr. 66 .
- Top up coolant
⇒ [“1.6 Drain and fill coolant \(Octavia II, Superb II\)”, page 205](#) .



Note

- ◆ Only then re-use drained coolant, if the cylinder head or cylinder block was not replaced.
- ◆ Dirty coolant must not be used again.

- Checking the oil level:

- ◆ ⇒ Maintenance ; Booklet Octavia II.
- ◆ ⇒ Maintenance ; Booklet Superb II.
- Perform a test drive.
- Query all fault memories, rectify any faults and delete fault memories ⇒ Vehicle diagnostic tester.



Note

After deleting the fault memory of the engine control unit the readiness code must be checked and, if necessary, re-generated.

Tightening torques

Component	Nm	
Screws and nuts	M6	9
	M7	13
	M8	20
	M10	40
	M12	70
In variation of this:		
Pendulum support to gearbox	⇒ page 29 ⇒ "1.4.1 Assembly bracket", page 24 .	
Pendulum support to assembly carrier	⇒ "1.4.1 Assembly bracket", page 24 .	
Engine/gearbox connecting screws	⇒ Gearbox; Rep. gr. 34	

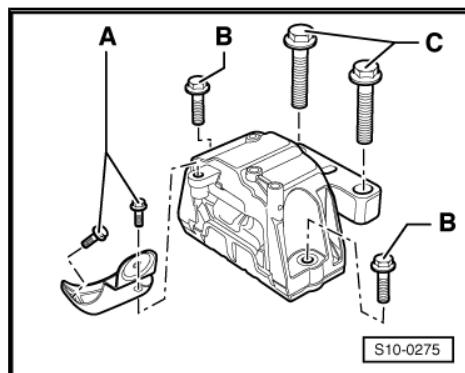
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1.4.1 Assembly bracket

Tightening torques

Engine mounting

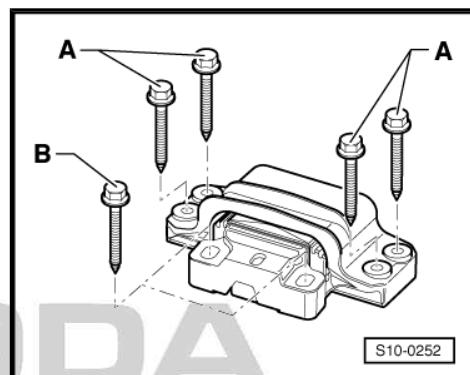
- A - 20 Nm + 90° - replace after disassembly
- B - 40 Nm + 90° - replace after disassembly
- C - 60 Nm + 90° - replace after disassembly





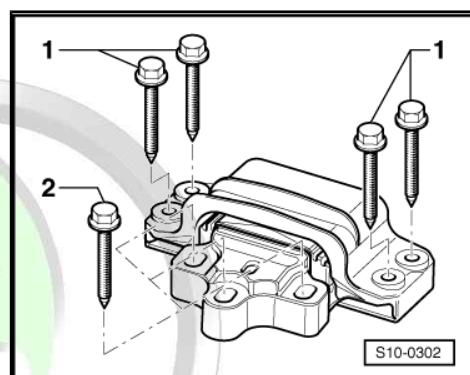
Gearbox mount 0A4

- A - 40 Nm + 90° - replace after disassembly
- B - 60 Nm + 90° - replace after disassembly



Gearbox mount 02E and 02Q

- 1 - 40 Nm + 90° - replace after disassembly
- 2 - 60 Nm + 90° - replace after disassembly

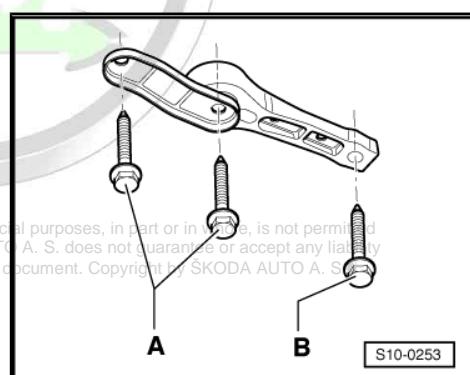


Pendulum support

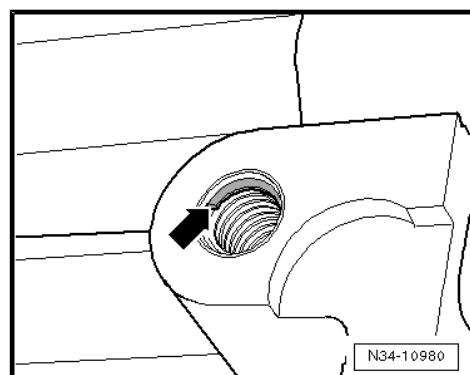
- A - strength class 8.8 - 40 Nm + 90° - replace after disassembly
- A - strength class 10.9¹⁾ - 50 Nm + 90° - replace after disassembly
- B - 100 Nm + 90° - replace

Removing: First unscrew screw -B-, then screw -A-.

Installing: First tighten screw -A-, then screw -B-.
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¹⁾ On manual gearbox MQ350 (02Q), only use the screws with the strength category 10.9 if threaded inserts have been installed (e.g. HeliCoil) -arrow-.



1.5 Installing (Fabia II, Roomster)

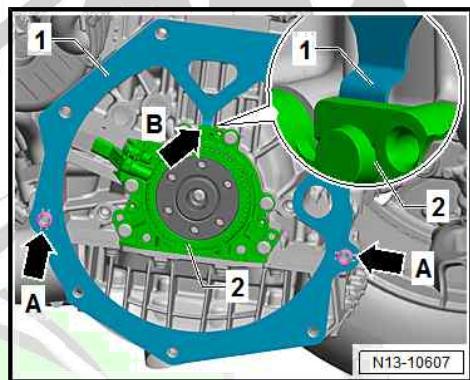
- Mount engine onto engine mount -T10012- .

Install in the reverse order of removal. When doing this, note the following:



Note

- ◆ Replace the self-locking nuts and screws when undertaking assembly work.
 - ◆ Replace screws which have been tightened to a torquing angle as well as gasket rings and seals.
 - ◆ All cable straps should be fitted on again in the same place when installing.
 - ◆ Secure all hose connections with corresponding hose clips.
 - ◆ Tightening torques ⇒ [page 28](#).
 - ◆ Assembly bracket ⇒ “[1.5.1 Assembly bracket](#)”, [page 29](#).
- Check whether the dowel sleeves for centering the engine/gearbox are present in the cylinder block; insert if necessary.
- Ensure that the intermediate plate -1- has been inserted on the sealing flange -arrow B- and is pushed onto the dowel sleeves -arrows A-.
- If necessary check the centering of the clutch disc.
- Inspect clutch release bearing for wear, replace if necessary.
- Grease the drive shaft serration with grease -G 000 100- .
- Assemble together the engine with gearbox ⇒ Gearbox; Rep. gr. 34 .
- When installing engine/gearbox unit, ensure adequate clearance to neighbouring components.
- Align the engine/gearbox unit free of stress and attach firmly.



N13-10607



Note

Use new screws for attaching.

- Remove engine mount -T10012- from engine.
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- Install slave cylinder ⇒ Gearbox; Rep. gr. 30 .
- Attach the shift mechanism to the gearbox and adjust ⇒ Gearbox; Rep. gr. 34 .



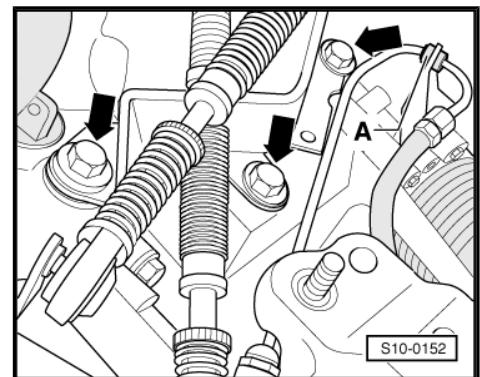
- Install Bowden cable support -arrows- and insert cable -A- for slave cylinder into the bracket on the gearbox.

On vehicles with air conditioning

- Install AC compressor ⇒ Heating, Air Conditioning; Rep. gr. 87 .

Continued for all vehicles

- Install alternator ⇒ Electrical System; Rep. gr. 27 .
- Install fan shroud on radiator
⇒ [“2.4 Removing and installing radiator \(Fabia II, Roomster\)”, page 223](#) .
- Install the V-ribbed belt
⇒ [“1.4 Removing and installing V-ribbed belt \(Fabia II, Roomster\)”, page 41](#) .
- Connect all connecting, fuel, cooling fluid, vacuum and suction hoses to the engine. Observe the assembly instruction when installing the air guide with push-fit coupling
⇒ [“2.11 Hose connections”, page 334](#) .
- Install holder for electric installation at the bottom onto the gearbox.
- Connect electrical connections and attach cables ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Install the pendulum support -arrows-. Use new screws for attaching.

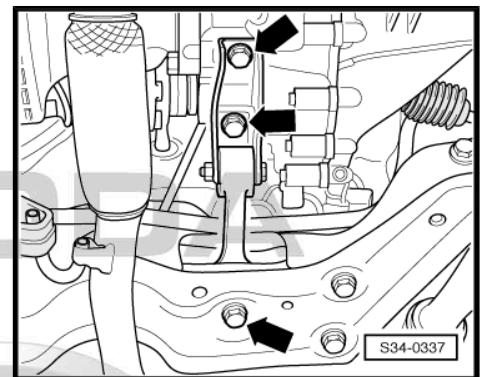


For engine with engine code AXR, BSW

- Install pre-exhaust pipe with catalytic converter and align free of stress
⇒ [“1.4.1 Summary of components for engine with identification characters AXR, BSW”, page 393](#) .

For engine with engine code BLS

- Install pre-exhaust pipe with diesel particle filter and align free of stress
⇒ [“1.4.2 Summary of components for engine with identification characters BLS”, page 394](#) .



Continued for all vehicles

- Install drive shafts on gearbox ⇒ Chassis; Rep. gr. 40 .



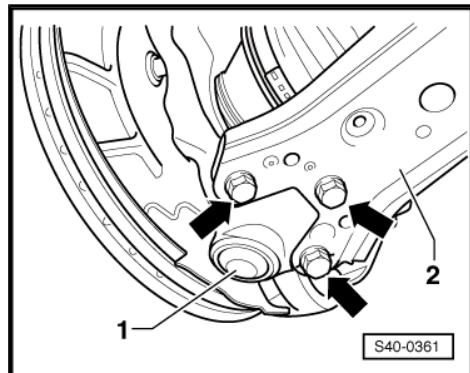
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- Screw on screws -arrows- for left steering joint ⇒ Chassis; Rep. gr. 40 .

Note

After installing the screws carry out the axial measurement ⇒ Chassis; Rep. gr. 44 .



- Install the right wheelhouse liner ⇒ Body Work; Rep. gr. 66 .
- Attach the right front wheel ⇒ Chassis; Rep. gr. 44 .
- Install the noise insulation ⇒ Body Work; Rep. gr. 50 .
- Install air filter with intake hose
⇒ "1.6 Removing and installing air filter (Fabia II, Roomster)", page 367 .
- Install the battery tray and battery ⇒ Electrical System; Rep. gr. 27 .

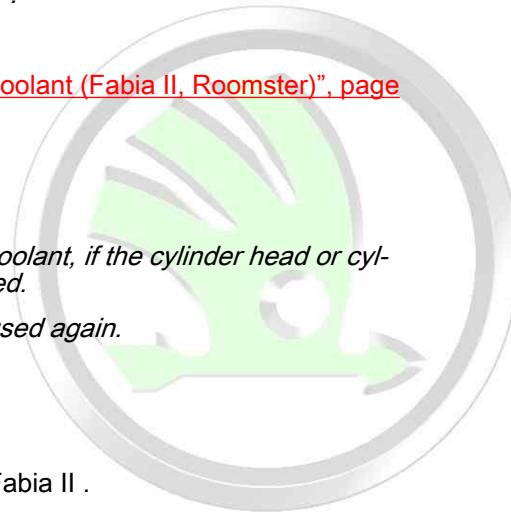
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Pay attention to the measures after re-connecting the battery ⇒ Electrical System; Rep. gr. 27 .

- Top up coolant
⇒ "1.7 Draining and filling coolant (Fabia II, Roomster)", page 208 .

Note

- ◆ Only then re-use drained coolant, if the cylinder head or cylinder block was not replaced.
- ◆ Dirty coolant must not be used again.



- Install the engine cover.
 - Checking the oil level:
 - ◆ ⇒ Maintenance ; Booklet Fabia II .
 - ◆ ⇒ Maintenance ; Booklet Roomster .
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- Perform a test drive.
 - Interrogate event memory and erase ⇒ Vehicle diagnostic tester.

Tightening torques

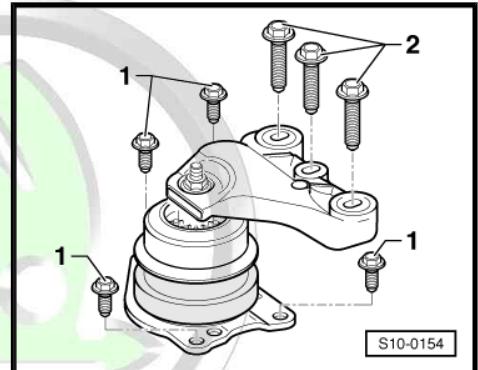
Component	Nm	
Screws and nuts	M6	9
	M7	13
	M8	20
	M10	40
	M12	70
In variation of this:		
Pendulum support to gearbox	⇒ page 29	
Pendulum support to sub-frame	⇒ page 29	
Engine/gearbox connecting screws ⇒ Gearbox; Rep. gr. 34		

1.5.1 Assembly bracket

Tightening torques

Engine mount

- 1 - 20 Nm + 90° - replace after disassembly
- 2 - 30 Nm + 90° - replace after disassembly

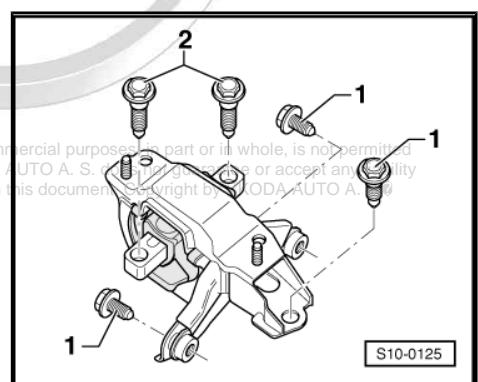


S10-0154

Gearbox mount

- 1 - 50 Nm + 90° - replace after disassembly
- 2 - 40 Nm + 90° - replace after disassembly

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S10-0125

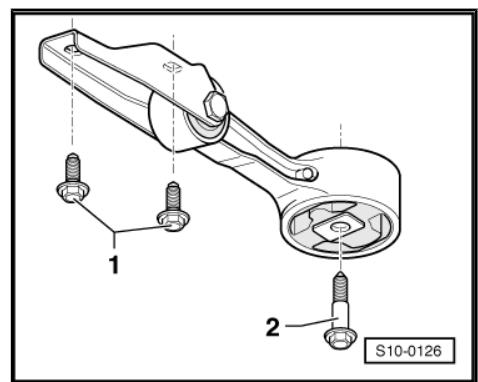
Pendulum support



Note

Position the screws -1- in the elongated holes of the pendulum support in such a way that there is maximum distance between the gearbox and the assembly carrier.

- 1 - 30 Nm + 90° - replace after disassembly
- 2 - 40 Nm + 90° - replace after disassembly



S10-0126

1.6 Checking and adjusting the assembly bracket (Superb II)

⇒ “1.6.1 Checking the assembly bracket”, page 30

⇒ “1.6.2 Adjusting the unit mounting”, page 30



1.6.1 Checking the assembly bracket

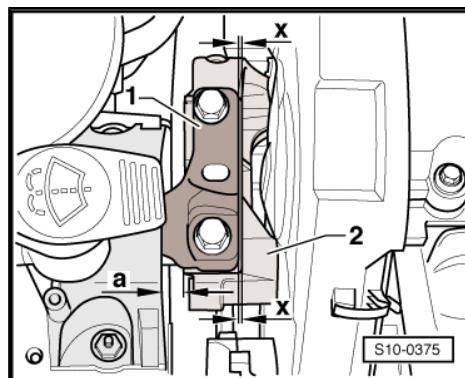
Check dimensions on the right hanger for engine/gearbox unit:

- Between engine bracket and engine support there must be a distance -a- of 10...13 mm.
- The cast iron edge on the engine support -2- must be parallel to the supporting arm -1- the dimension -x- must be the same at the front and rear.



Note

The distance -a- can be checked, for example with suitable round bars.



Only if there is an acoustic complaint (engine or gearbox knock on the frame side rail when cornering) and the dimension -a- is outside 10...13 mm:

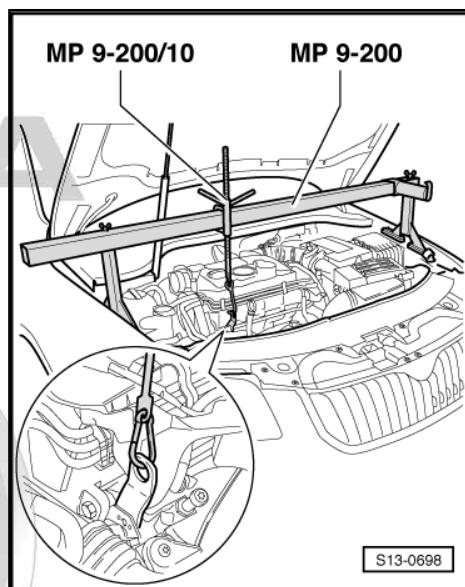
- Adjust the assembly bracket
⇒ "1.6.2 Adjusting the unit mounting", page 30 .

1.6.2 Adjusting the unit mounting

Special tools and workshop equipment required

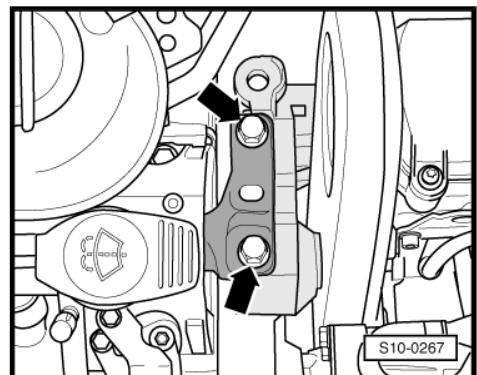
- ◆ Supporting device - MP9-200 (10-222A)-
- ◆ Hook - MP9-200/10 (10-222A/10)-
- Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .
- Remove the cooling water tank cover ⇒ Body Work; Rep. gr. 66 .
- Install the supporting device -MP9-200 (10-222A)-, suspend the engine on the right lifting eye with hook -MP9-200/10 (10-222A/10)- and preload via the spindle, however do not lift.

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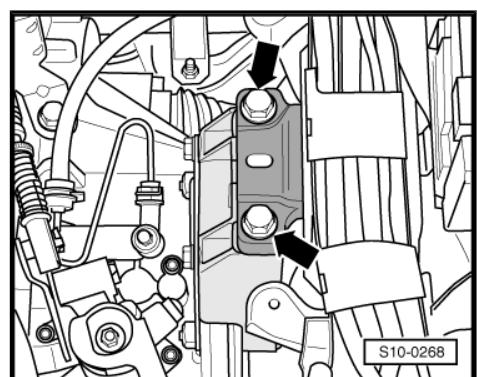




- Release the screws -arrows- of the assembly bracket at the engine.



- Slightly loosen the screws -arrows- of the assembly bracket at the gearbox (less than 1 revolution).
- Successively replace all the screws of the assembly bracket (as long as it has not already been performed when installing the engine) and insert these loosely.



- Move the engine/gearbox assembly with an assembly lever between engine support and supporting arm for engine mount until the following dimensions are set:
 - Between engine bracket and engine support there must be a distance -a- of 10...13 mm.
 - The cast iron edge on the engine support -2- must be parallel to the supporting arm -1- the dimension -x- must be the same at the front and rear.

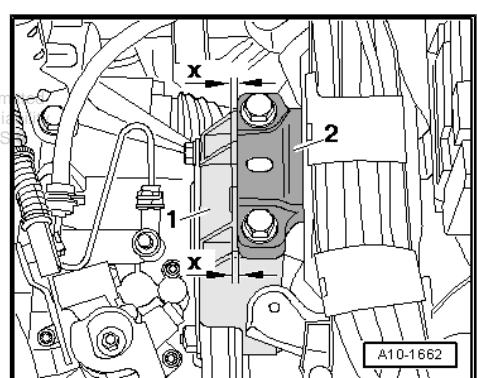
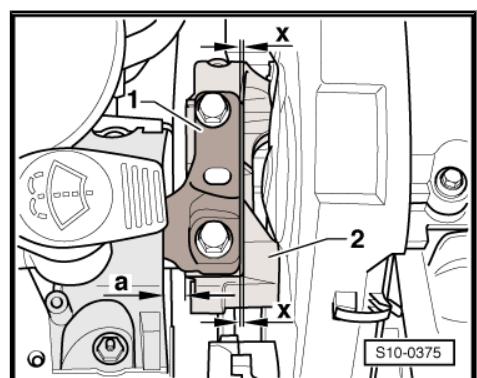


Note

The distance -x- = 10 mm can be checked, for example with suitable round bars.

- Tighten screws for engine assembly bracket
[⇒ "1.5.1 Assembly bracket", page 29](#).
- Make sure that on the gearbox side the edges of the supporting arm -2- and gearbox support -1- are parallel.
- The dimension -x- must be the same on both mount sides.
- Tighten screws for gearbox assembly bracket
[⇒ "1.5.1 Assembly bracket", page 29](#).

Installation is carried out in the reverse order.





1.7 Checking and adjusting the assembly bracket (Octavia II)

⇒ “1.7.1 Checking the assembly bracket”, page 32

⇒ “1.7.2 Adjusting the unit mounting”, page 32

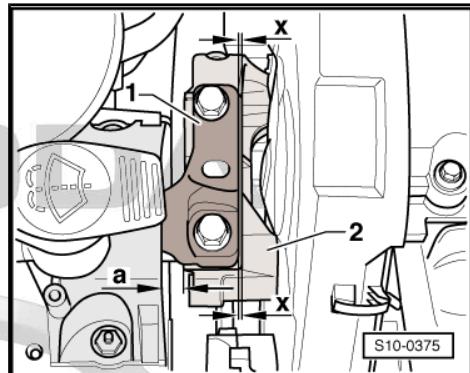
1.7.1 Checking the assembly bracket

Check dimensions on the right hanger for engine/gearbox unit:

- Between engine bracket and engine support there must be a distance -a- of 10...13 mm.
- The cast iron edge on the engine support -2- must be parallel to the supporting arm -1- the dimension -x- must be the same at the front and rear.



The distance -a- can be checked, for example with suitable round bars.



Only if there is an acoustic complaint (engine or gearbox knock on the frame side rail when cornering) and the dimension -a- is outside 10...13 mm:

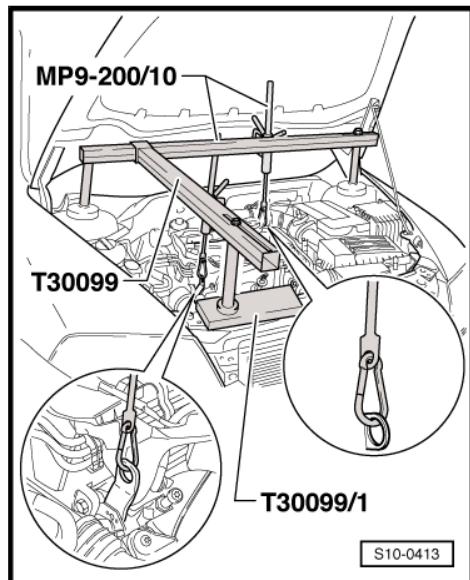
- Adjust the assembly bracket
⇒ “1.7.2 Adjusting the unit mounting”, page 32 .

1.7.2 Adjusting the unit mounting

Special tools and workshop equipment required

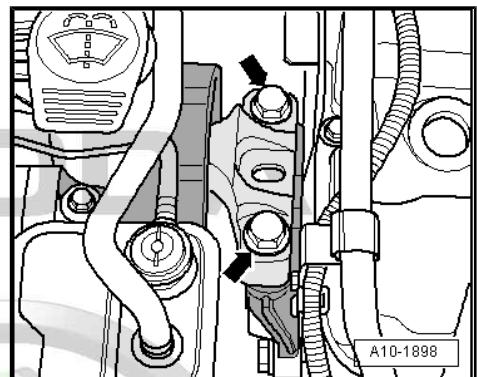
- ◆ Supporting device - T30099-
- ◆ Surface - T30099/1-
- ◆ Hook - MP9-200/10 (10-222A/10)-
- Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .
- Remove the cooling water tank cover ⇒ Body Work; Rep. gr. 66 .
- Position supporting device - T30099- and base - T30099/1- and support the engine/gearbox unit in its installed position.
- Uniformly pre-tension the engine/gearbox assembly at both spindles, but do not raise.

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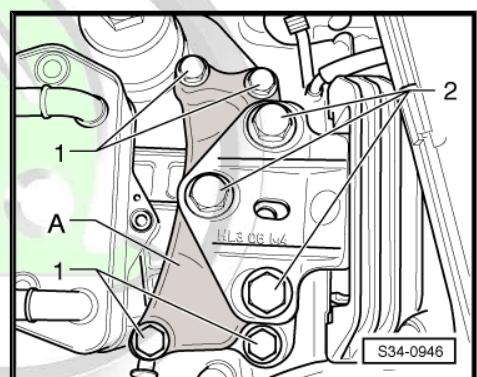




- Release the screws -arrows- of the assembly bracket at the engine.



- Slightly loosen the screws -2- of the unit mounting at the gearbox (less than 1 revolution).
- Successively replace all the screws of the assembly bracket (as long as it has not already been performed when installing the engine) and insert these loosely.

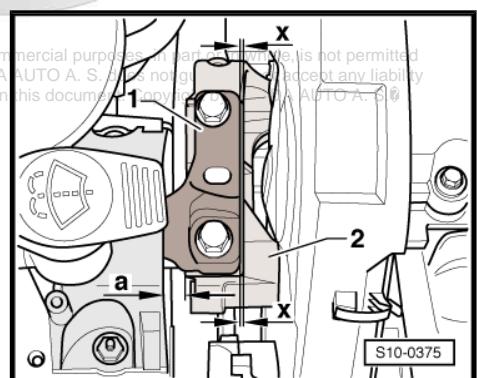


- Move the engine/gearbox assembly with an assembly lever between engine support -1- and supporting arm -3- for engine mount until the following dimensions are set:
 - Between engine bracket and engine support there must be a distance -a- of 10 mm.
 - The cast iron edge on the engine support -2- must be parallel to the supporting arm -1- the dimension -x- must be the same at the front and rear.



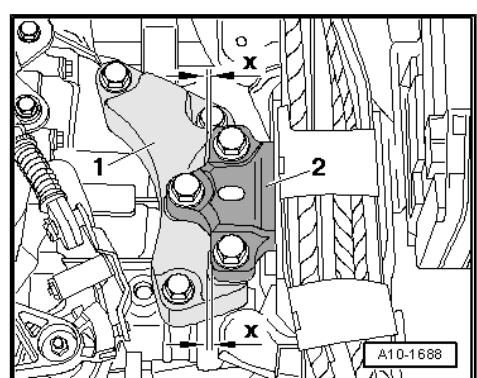
Note

The distance -a- = 10 mm can be checked, for example with suitable round bars.



- Tighten screws for engine mount
[⇒ "1.4.1 Assembly bracket", page 24](#).
- Make sure that on the gearbox side the edges of the supporting arm -2- and gearbox support -1- are parallel.
 - The dimension -x- must be the same on both mount sides.
- Tighten screws for gearbox mount
[⇒ "1.4.1 Assembly bracket", page 24](#).

Further installation occurs in reverse order.





13 – Crankshaft group

1 Removing and installing a V-ribbed belt and a toothed belt

⇒ “1.1 Summary of components - V-ribbed belt (Octavia II, Superb II)”, page 34

⇒ “1.2 Removing and installing V-ribbed belt (Octavia II, Superb II)”, page 36

⇒ “1.3 Summary of components - V-ribbed belt (Fabia II, Roomster)”, page 38

⇒ “1.4 Removing and installing V-ribbed belt (Fabia II, Roomster)”, page 41

⇒ “1.5 Summary of components - toothed belt (Superb II)”, page 43

⇒ “1.6 Removing and installing toothed belt (Superb II)”, page 46

⇒ “1.7 Summary of components - toothed belt (Octavia II)”, page 53

⇒ “1.8 Removing and installing toothed belt (Octavia II)”, page 57

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⇒ “1.9 Summary of components - toothed belt (Fabia II, Roomster)”, page 64

⇒ “1.10 Removing and installing toothed belt (Fabia II, Roomster)”, page 67

1.1 Summary of components - V-ribbed belt (Octavia II, Superb II)



1 - Poly V-belt pulley

- with vibration damper
- Adjust TDC with the vibration damper fitted
⇒ Fig. ““Adjust TDC with the vibration damper fitted””, page 56

2 - Cap

- mounted up to 05.05

3 - Screw

- Replace after disassembly
- 10 Nm + 90°

4 - Tensioning device for V-ribbed belt

- swivel tensioning device for V-ribbed belt with open-end wrench to slacken the V-ribbed belt
- Tensioning device can be interlocked with locking pin -T10060A- or Allen keyth respect to the correctness of assembly

5 - Screw

- 23 Nm

6 - Bracket for auxiliary units

- order of tightening
⇒ Fig. ““Bolts at bracket for auxiliary units - tightening sequence””, page 36

7 - Bush

8 - Screw

- 23 Nm

9 - AC generator

- removing and installing ⇒ Electrical System; Rep. gr. 27
- to facilitate positioning, push the threaded bushings of the fixing screws on the generator backwards slightly

10 - Screw

- insert using locking agent -D 000 600 A2-
- order of tightening ⇒ Fig. ““Bolts at bracket for auxiliary units - tightening sequence””, page 36
- 45 Nm

11 - Bush

- 2 pieces

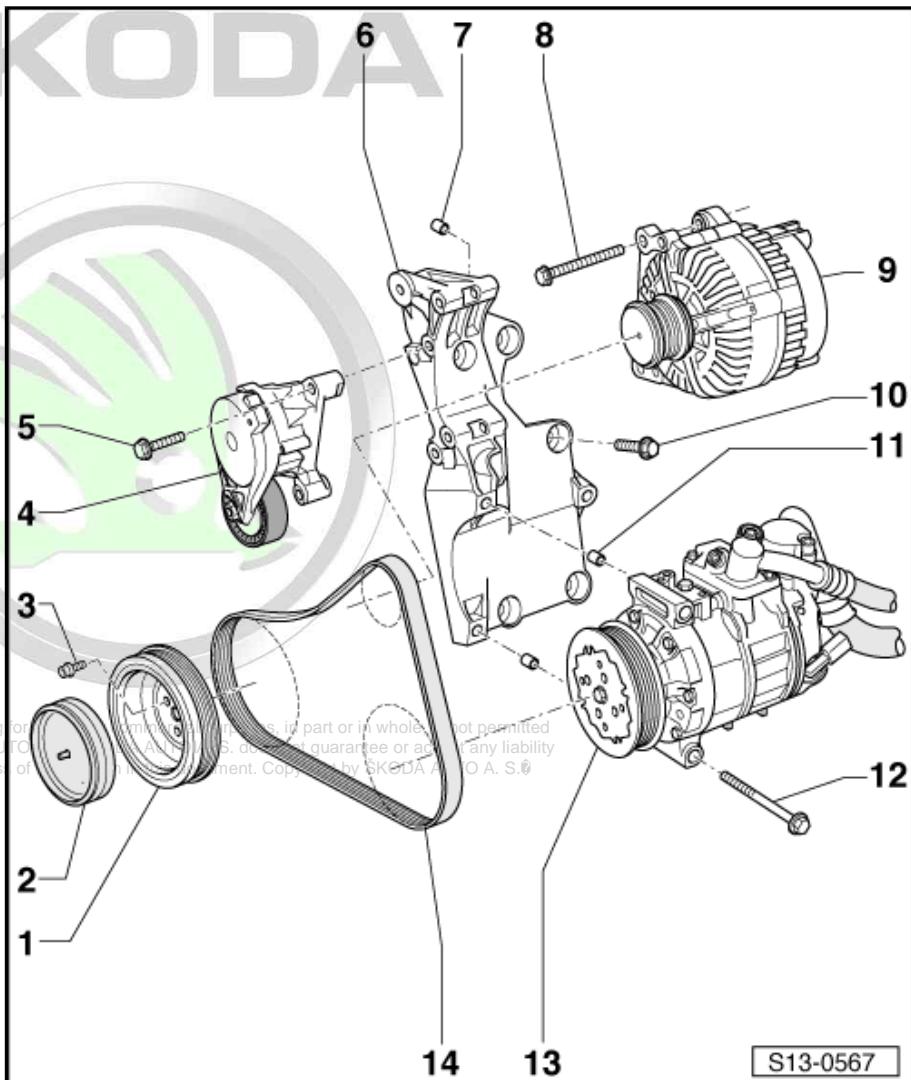
12 - Screw

- 25 Nm

13 - AC compressor

14 - V-ribbed belt

- removing and installing ⇒ “1.2 Removing and installing V-ribbed belt (Octavia II, Superb II)”, page 36
- mark the direction of rotation with chalk or a felt-tip pen before removing
- check for wear

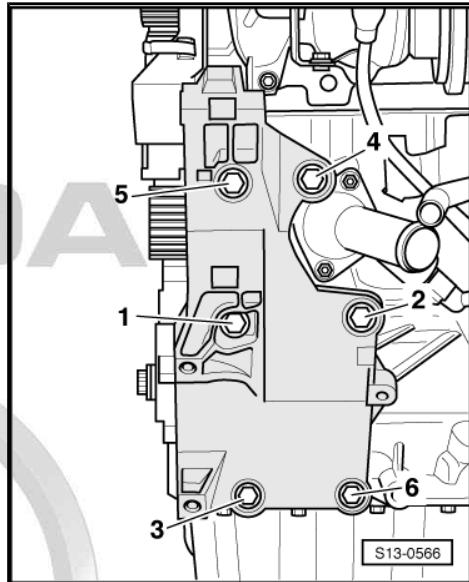


S13-0567



- do not kink

Bolts at bracket for auxiliary units - tightening sequence



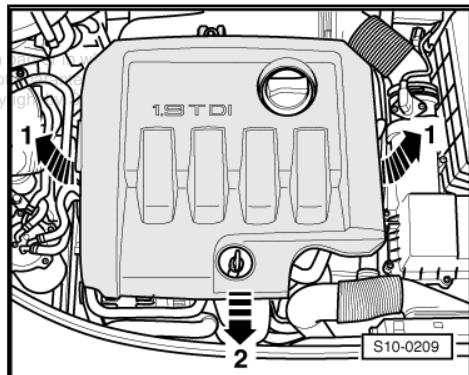
1.2 Removing and installing V-ribbed belt (Octavia II, Superb II)

Removing

Special tools and workshop equipment required

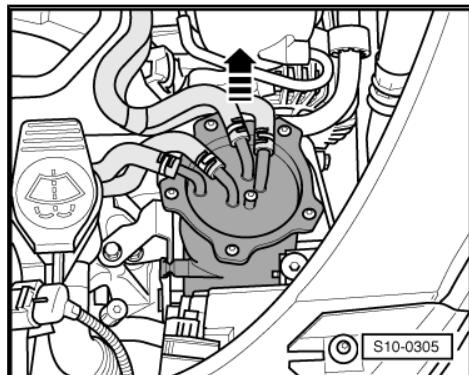
- ◆ Locking pin - T10060A-
- Lift the engine cover at the sides -arrows 1- and pull out towards the front -arrow 2-

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For the vehicles Octavia II up to 08.05

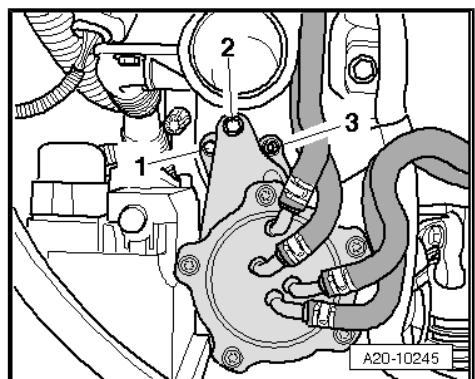
- Unlatch fuses, remove fuel filter with its connected lines upwards from bracket -arrow- and lay to the side.





For Octavia II vehicles as of 08.05 and Superb II vehicles.

- Release screw -1- by one turn.
- Release screw -2- and nut -3-.
- Take out fuel filter with connected hoses and lay to the side.



For vehicles with auxiliary heating

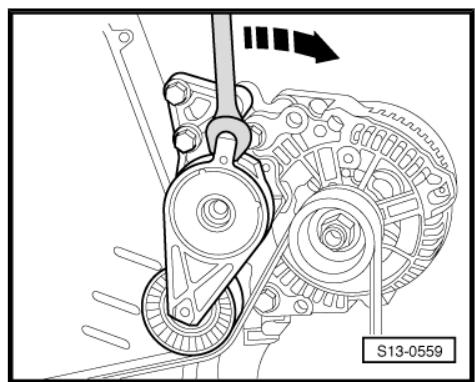
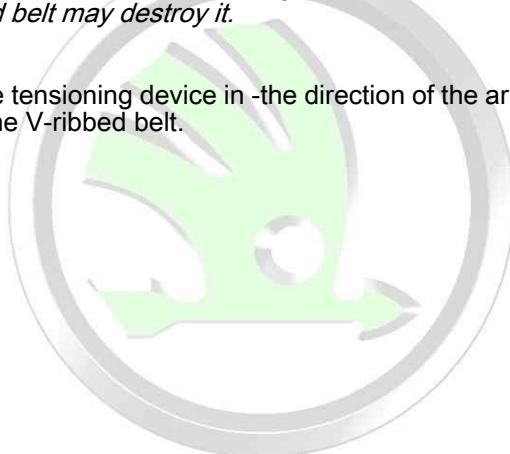
- Remove the front right wheelhouse liner ⇒ Body Work; Rep. gr. 66 .

Continued for all vehicles



Mark the direction of rotation with chalk or a felt-tip pen before removing the V-ribbed belt. Reversing the rotation direction of an already used belt may destroy it.

- Swing the tensioning device in -the direction of the arrow- de-tension the V-ribbed belt.



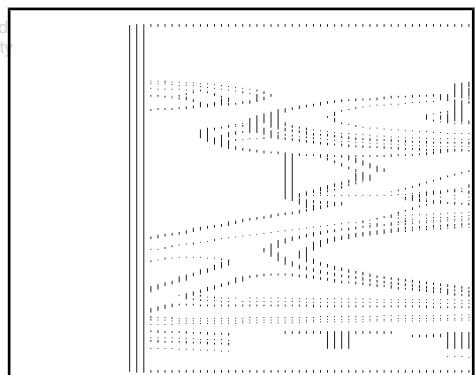
- Lock the tensioning element with the locking pin -T10060A-. unless authorised by ŠKODA AUTO A. S. ŠKODA AUTO A. S. does not guarantee or accept any liability for any damage caused by unauthorised modification of the vehicle. Copyright by ŠKODA AUTO A. S.
- Remove the release ribbed V-belt.

Install

Install in the reverse order of removal. When doing this, note the following:

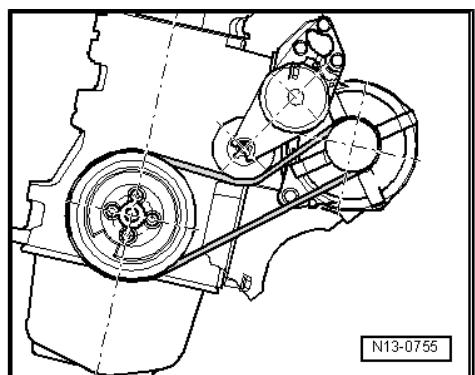


Before fitting the V-ribbed belt make sure that all assemblies (generator and AC compressor) are securely mounted.



On vehicles without air conditioning

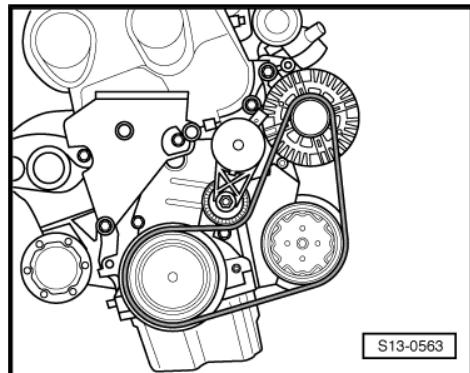
- First lay the V-ribbed belt on the belt pulley of the crankshaft and generator, then release the tensioning device.





On vehicles with air conditioning

- First position the ribbed V-belt on the belt pulleys of the crank-shaft and AC compressor and on the belt pulley of the generator last; then release the tensioning device.
- Check correct positioning of the ribbed V-belt on the belt pulleys.
- Start engine and check belt run.



1.3 Summary of components - V-ribbed belt (Fabia II, Roomster)

⇒ “1.3.1 Summary of components - Vehicles without air conditioning”, page 38

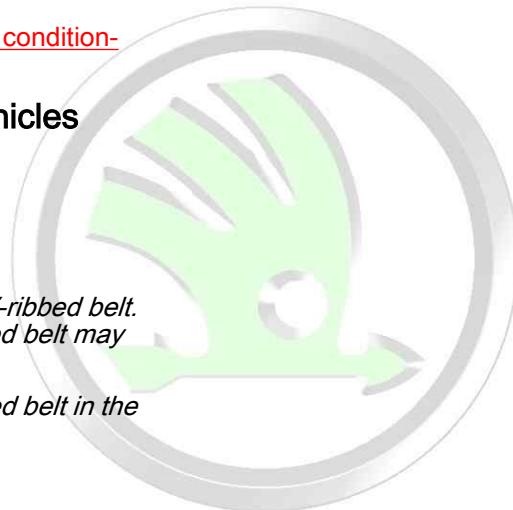
⇒ “1.3.2 Summary of components - Vehicles with air conditioning”, page 40

1.3.1 Summary of components - Vehicles without air conditioning



Note

- ◆ *Mark the rotation direction before removing the V-ribbed belt. Reversing the rotation direction of an already used belt may destroy it.*
- ◆ *Pay attention to the correct position of the V-ribbed belt in the belt pulley when installing it.*



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1 - Screw

- Replace after disassembly
- 10 Nm + 90°

2 - Belt pulley/vibration damper

- Assembly only possible in one position - holes offset

3 - Screw

- 25 Nm

4 - Tensioner for V-ribbed belt

5 - Support

- for generator
- Fitting sleeve
⇒ Fig. "Fitting sleeve", page 39

6 - Screw

- 45 Nm

7 - Support

- for bottom charge-air pipe

8 - Screw

- 8 Nm

9 - AC generator

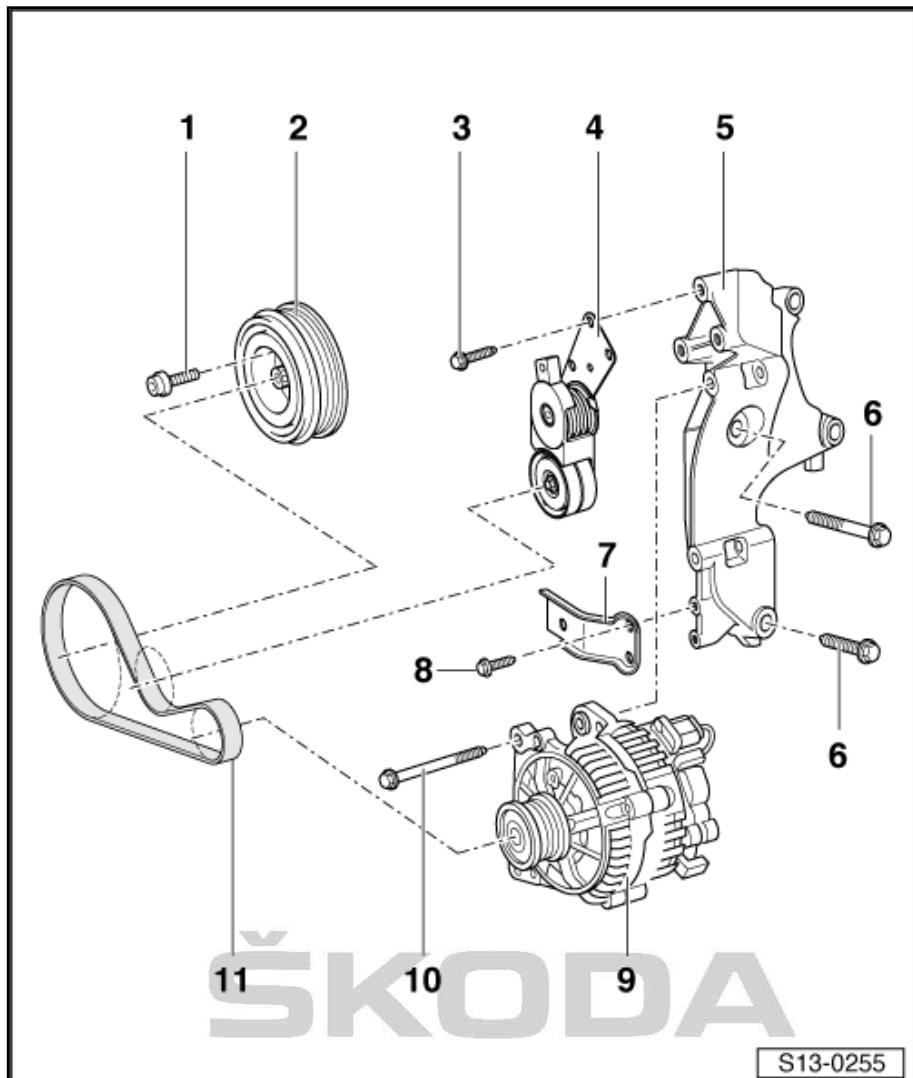
- to facilitate the positioning of the generator on the holder push the threaded bushings of the fixing screws backwards slightly

10 - Screw

- 25 Nm

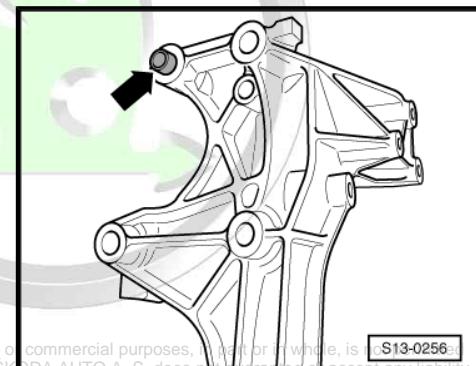
11 - V-ribbed belt

- removing and installing *⇒ "1.4 Removing and installing V-ribbed belt (Fabia II, Roomster)", page 41*



Fitting sleeve

- Before installing bracket, check whether the dowel sleeve is inserted -arrow-.



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1.3.2 Summary of components - Vehicles with air conditioning

Note

- ◆ *Mark the rotation direction before removing the V-ribbed belt. Reversing the rotation direction of an already used belt may destroy it.*
- ◆ *Pay attention to the correct position of the V-ribbed belt in the belt pulley when installing it.*

1 - Screw

- Replace after disassembly
- 10 Nm + 90°

2 - Belt pulley/vibration damper

- Assembly only possible in one position - holes offset

3 - Screw

- 25 Nm

4 - AC generator

- to facilitate the positioning of the generator on the holder push the threaded bushings of the fixing screws backwards slightly

5 - Tensioner for V-ribbed belt

6 - Support

- for AC generator and AC compressor
- Fitting sleeve
⇒ Fig. "Fitting sleeve", page 41

7 - Screw

- 25 Nm

8 - Screw

- 45 Nm

9 - Support

- for bottom charge-air pipe

10 - Screw

- 8 Nm

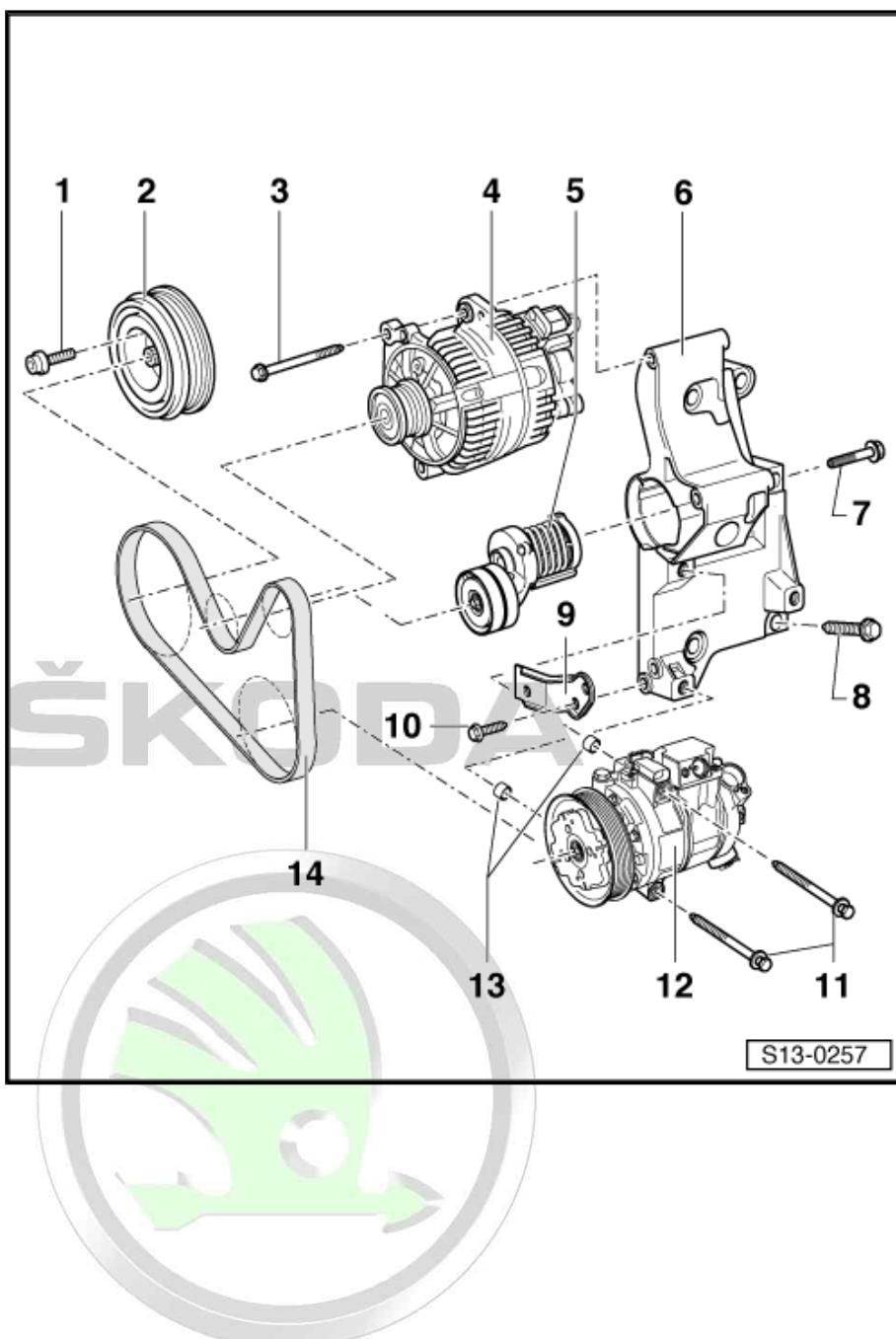
11 - Screw

- 25 Nm

12 - AC compressor

13 - Dowel sleeves for AC compressor

- must be present in holder
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S13-0257

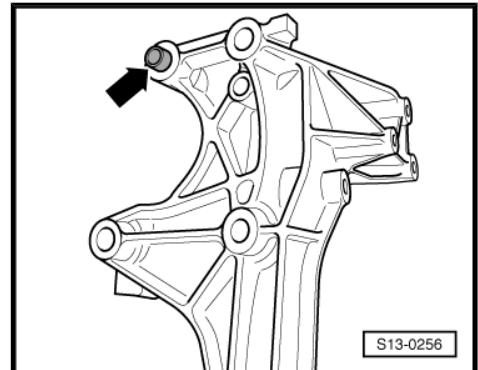


14 - V-ribbed belt

- removing and installing [“1.4 Removing and installing V-ribbed belt \(Fabia II, Roomster\)”, page 41](#)

Fitting sleeve

- Before installing bracket, check whether the dowel sleeve is inserted -arrow-.



S13-0256

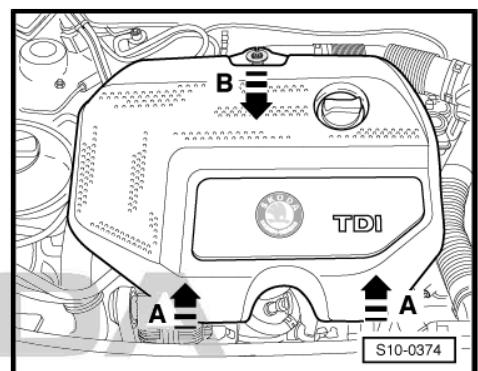
1.4 Removing and installing V-ribbed belt (Fabia II, Roomster)

Special tools and workshop equipment required

- ◆ Pliers for spring strap clamps
- ◆ Locking pin - T10060A-

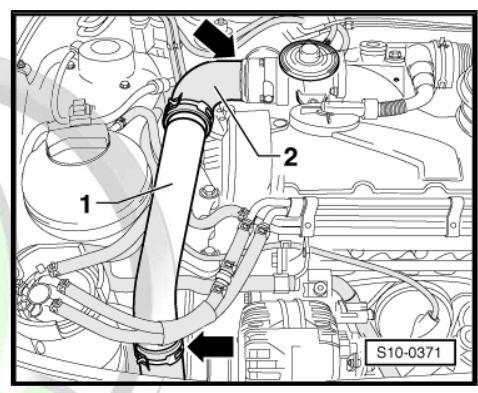
Removing - vehicles without air conditioning

- Lift the engine cover at the sides -arrows A- and pull out towards the front -arrow B-.



S10-0374

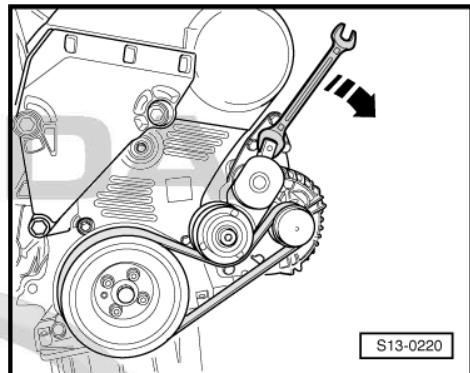
- Remove charge-air pipe at the top -1- with connecting hose -2- -arrows-.
- Mark the rotation direction of the V-ribbed belt.



S10-0371



- Swing the tensioning pulley in -the direction of the arrow- de-tension the V-ribbed belt.



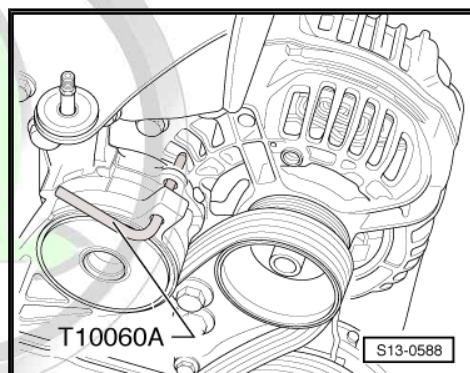
S13-0220

- Lock tensioning pulley with locking pin - T10060A - .
- Remove V-ribbed belt; first from the generator belt pulley.

Removing- vehicles with air conditioning

- Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .

For engine with identification characters BSW

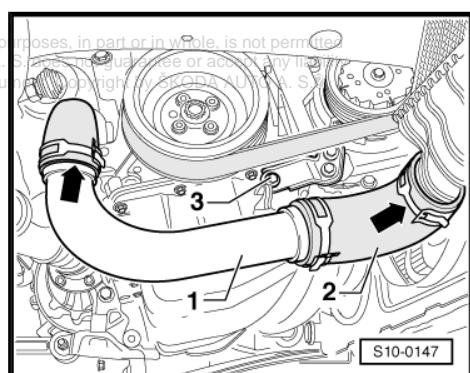


S13-0588

- Release screw -3-.
- Remove charge-air pipe at bottom -1- with connecting hose -2- -arrows-.

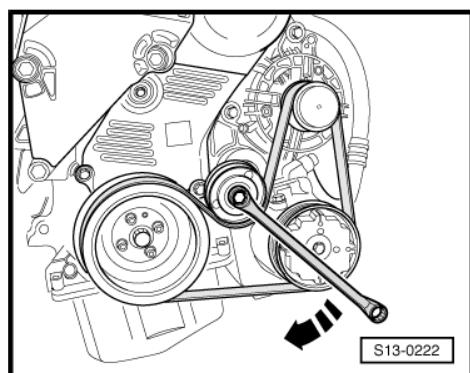
Continued for all vehicles

- Mark the rotation direction of the V-ribbed belt.



S10-0147

- Swing the tensioning pulley in -the direction of the arrow- de-tension the V-ribbed belt.



S13-0222



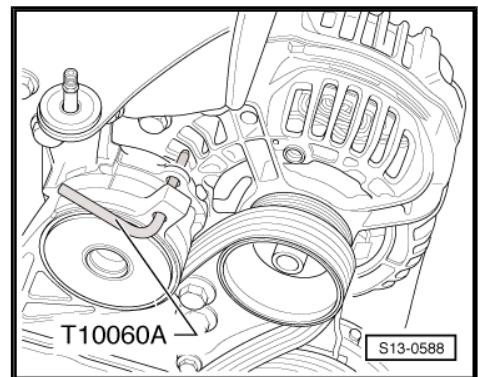
- Lock tensioning pulley with locking pin - T10060A- .
- Remove V-ribbed belt; first from the air conditioning compressor belt-pulley.

Install

Install in the reverse order of removal. When doing this, note the following:

Note

- ◆ *Inspect the V-ribbed belt:*
 - ◆ *⇒ Maintenance ; Booklet Fabia II .*
 - ◆ *⇒ Maintenance ; Booklet Roomster .*
 - ◆ *Before fitting the V-ribbed belt make sure that all assemblies (generator and AC compressor) are securely mounted.*
 - ◆ *Ensure belt pulley and tensioning pulley run freely.*
- Tension the tensioning device and lay the V-ribbed belt on it; lay it over the generator belt pulley last.
 - Start engine and check belt run.



1.5 Summary of components - toothed belt (Superb II)

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1 - Screw

- Replace after disassembly
- 10 Nm + 90°

2 - Poly V-belt pulley

- with vibration damper
- with notch, which marks the TDC for cylinder 1
- Adjust TDC with the vibration damper fitted
⇒ Fig. ““Adjust TDC with the vibration damper fitted””, page 46

3 - Bottom toothed belt guard
4 - Screw

- insert using locking agent -D 000 600 A2-
- 10 Nm

5 - Middle toothed belt guard

- Adjust TDC with the vibration damper fitted
⇒ Fig. ““Adjust TDC with the vibration damper fitted””, page 46
- to remove, remove top toothed belt guard and unscrew tensioning device for ribbed V-belt.

6 - Top toothed belt guard

- to remove, remove the right charge air pipe
- when installing, carefully insert into the middle toothed belt guard

7 - Toothed belt

- mark the direction of rotation with chalk or a felt-tip pen before removing
- check for wear
- removing *⇒ “1.6.1 Removing”, page 46*
- install (set the timing) *⇒ “1.6.2 Installing (set the timing)”, page 50*


Note

If the toothed belt is replaced within the scope of engine repair (apart from change intervals), it should be entered in the Service Schedule!

8 - Nut

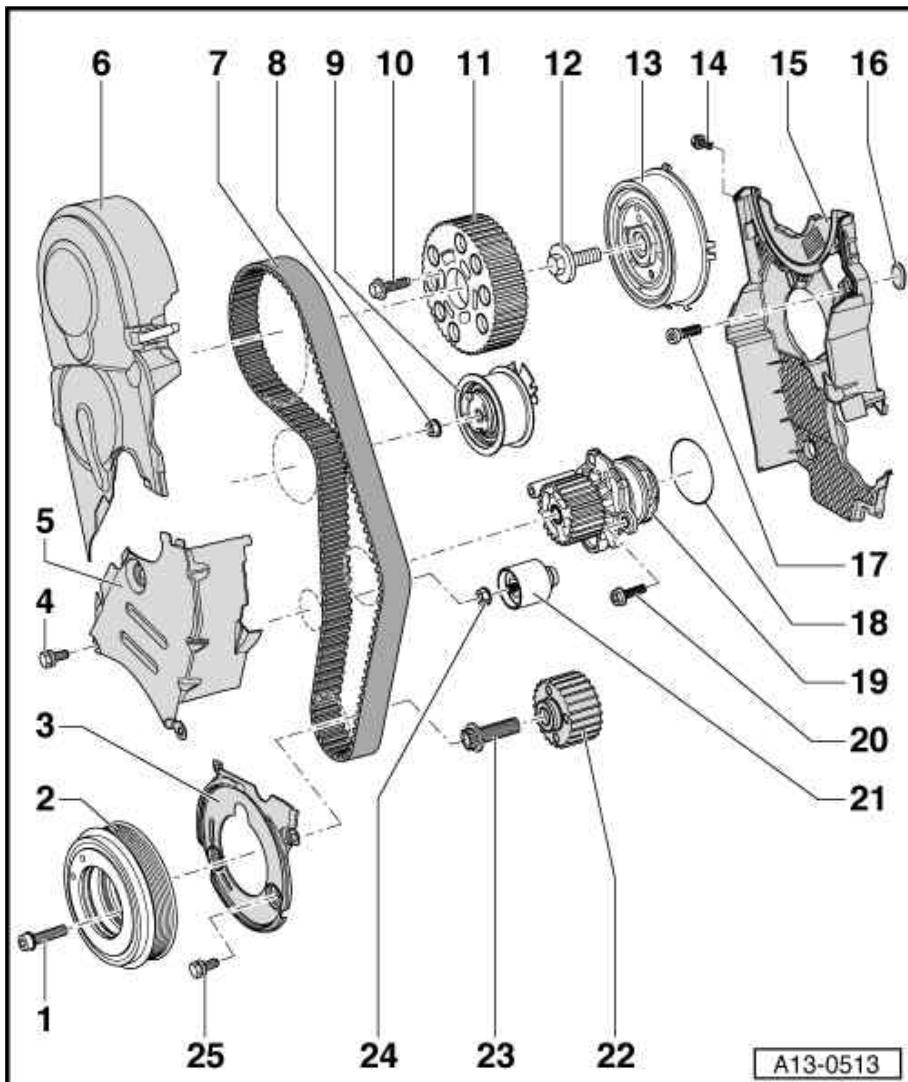
- 20 Nm + 45°

9 - Tensioning pulley

- The eccentric of the new version has an additional hole for 6 mm hexagon socket wrench
⇒ Fig. ““Tensioning pulley””, page 46

10 - Screw

- 20 Nm + 45°



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11 - Camshaft pulley

- Mark installation position

12 - 100 Nm

- to release and tighten use the counterholder -T10051-

13 - Hub

- with sensor rotor for the Hall sensor -G40-
- to release and tighten use the counterholder -T10051-
- to remove the extractor -T10052- use
- removing and installing [⇒ “2.3 Replacing camshaft gasket ring”, page 150](#)

14 - Screw

- insert using locking agent -D 000 600 A2-
- 10 Nm

15 - Rear toothed belt guard

- to remove, unscrew coolant pump
- When installing carefully insert into the front sealing flange

16 - Rubber grommet

- replace if damaged

17 - Screw

- 25 Nm

18 - O-ring

- Replace after disassembly

19 - Coolant pump

- removing and installing [⇒ “1.8 Removing and installing coolant pump”, page 210](#)

20 - Screw

- 13 Nm

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21 - Guide pulley

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22 - Crankshaft - toothed belt sprocket

- there must not be any oil present on the contact surface between the toothed belt sprocket and the crankshaft
- can be installed only in one position
- use for fixing -T10100-

23 - Screw

- do not oil
- to release and tighten use the counterholder -T30004- or counterholder - MP1-310-
- 120 Nm + 90°

24 - Nut

- 22 Nm

25 - Screw

- insert using locking agent -D 000 600 A2-
- 10 Nm

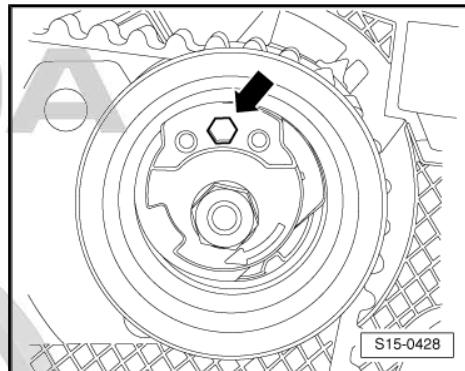


Tensioning pulley

Additional hole in the eccentric of the tensioning pulley for 6 mm hexagon socket wrench -arrow-.

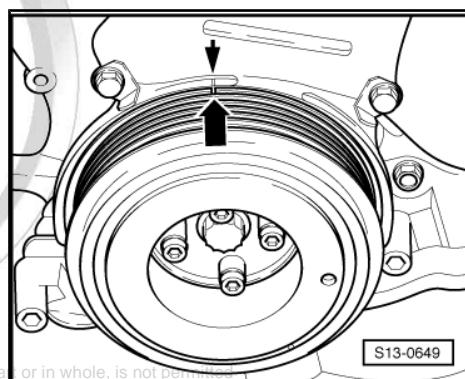


The tensioning pulley of the new version can be adjusted with the special two-hole nut turner - T10020- or using a commercial 6 mm hexagon socket wrench.



Adjust TDC with the vibration damper fitted

- Bring the TDC marking on the vibration damper (notch) as shown -large arrow- into alignment with the marking at the middle toothed belt guard (marked arrow) -small arrow-.



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1.6 Removing and installing toothed belt (Superb II)

⇒ [“1.6.1 Removing”, page 46](#)

⇒ [“1.6.2 Installing \(set the timing\)”, page 50](#)

1.6.1 Removing

(Superb II)



If the toothed belt is replaced within the scope of engine repair (apart from change intervals), it should be entered in the Service Schedule!

Special tools and workshop equipment required

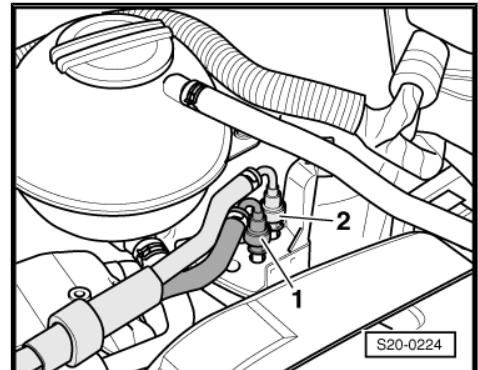
- ◆ Supporting device - MP9-200 (10-222A)-
- ◆ Hook - MP9-200/10 (10-222A/10)-
- ◆ Locking pin - 3359- or -MP1-301-
- ◆ Crankshaft arrester - T10100-
- ◆ Offset screwdriver - T10264-
- ◆ Rig tool - T10265-
- ◆ Counterholder - T10172- with bolts - T10172/4-
- ◆ Pliers for spring strap clamps
- ◆ Locking agent - D 000 600 A2-



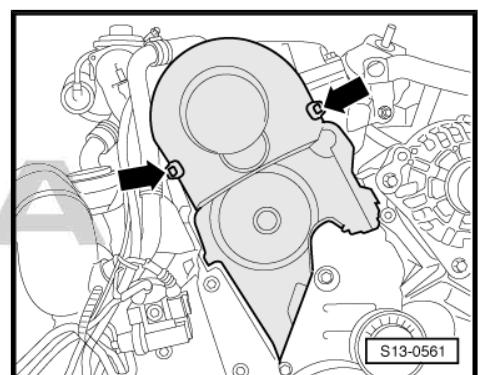
Note

Mark the direction of rotation with chalk or a felt-tip pen before removing the V-ribbed belt. Reversing the rotation direction of an already used belt may destroy it.

- Remove V-ribbed belt
[⇒ "1.2 Removing and installing V-ribbed belt \(Octavia II, Superb II\)", page 36 .](#)
- Remove charge air hose to connection fitting of engine.
- Unscrew the coolant expansion bottle and place with connected hoses onto the cylinder head cover.
- Remove fuel feed line -2- and fuel return line -1-, to do so press latch clips.



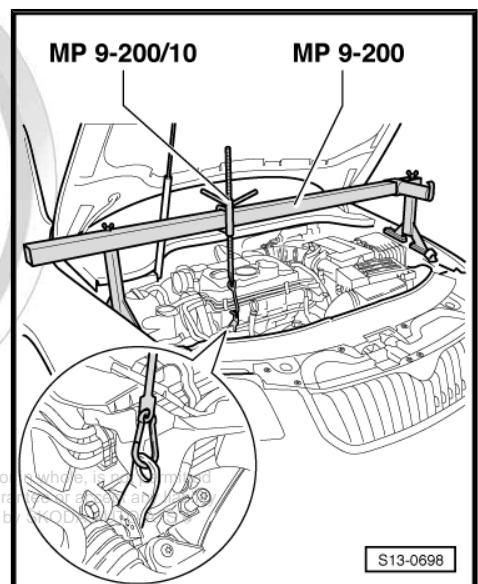
- Remove top toothed belt guard, to do so release retaining clips -arrows-.
- Remove ribbed V-belt tensioning device.
- Remove the front right wheelhouse liner ⇒ Body Work; Rep. gr. 66 .
- Remove V-ribbed belt pulley with vibration damper.
- Unscrew bottom and middle toothed belt guard.



- Install the supporting device -MP9-200 (10-222A)-, suspend the engine on the right lifting eye with hook -MP9-200/10 (10-222A/10)- and preload via the spindle, however do not lift.

Note

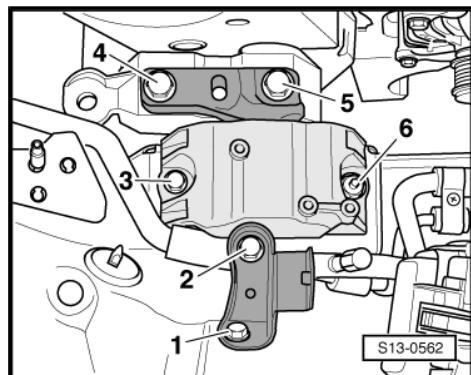
If the cylinder head must be removed, two spindles must be attached at the supporting device - T30099-
[⇒ "1.4 Removing and installing cylinder head \(Superb II\)", page 121 .](#)



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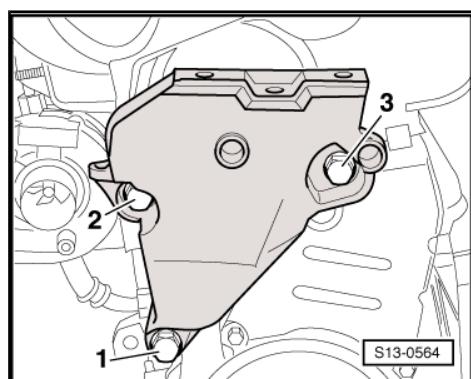
- Release screws -1- and -2- and remove connecting stud.
- Unscrew screws -3 ... 6- and remove engine mount console.



- Release screws -1...3- and remove engine support.

Note

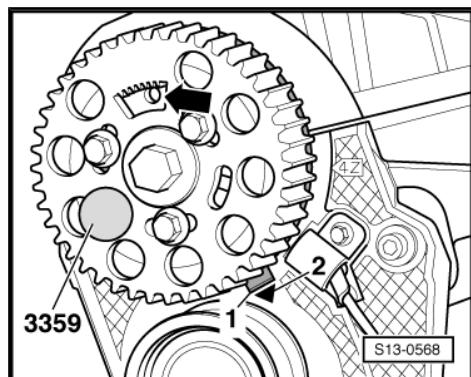
- ◆ To release the bolts for the engine support, raise or lower engine slightly via spindle of supporting device -MP9-200 (10-222A)- .
- ◆ Turn engine at hexagonal head of central screw at front side of the crankshaft in the direction of rotation of the engine (from the belt pulley side clockwise) or with counterholder - T10172- or counterholder - MP1-216- at camshaft sprocket.



- Rotate crankshaft to TDC for cylinder 1.
- The gear segment -arrow- must point upwards.
- The lug -1- on the wheel of the camshaft position sensor must be opposite the marking -2- on the rear toothed belt guard.

Note

To provide a clearer illustration, the camshaft sprocket is illustrated without the toothed belt.



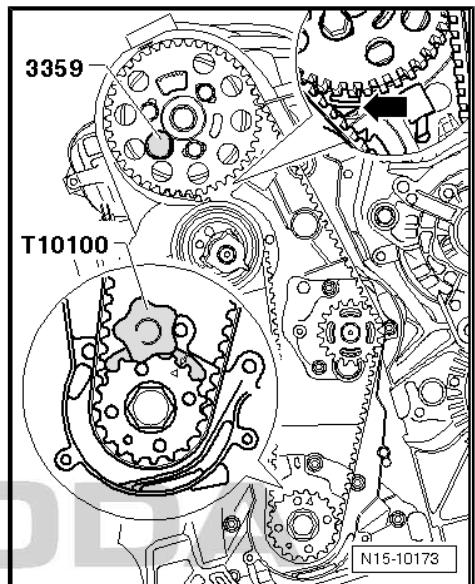
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- Lock hub with rig pin -3359- .
- Lock the crankshaft toothed belt sprocket with the crankshaft arrester -T10100- .

Note

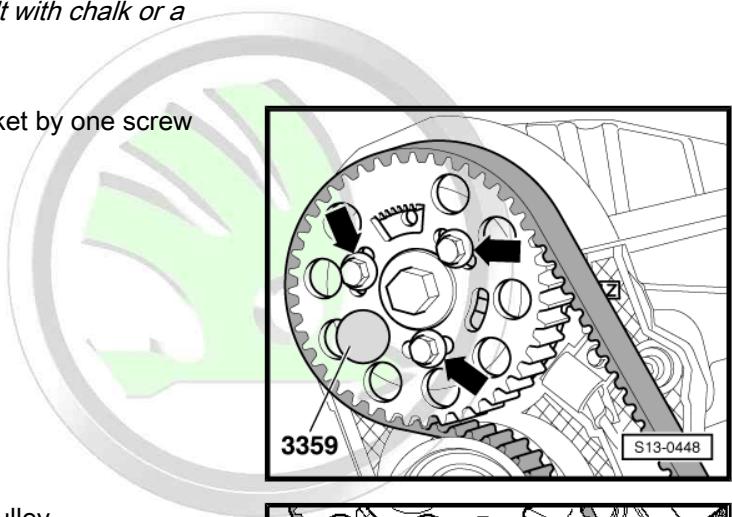
- ◆ *The markings on the toothed belt sprocket and on the crank-shaft arrester must be in line with each other. The stud on the crankshaft arrester must engage into the hole in the sealing flange.*
- ◆ *The crankshaft arrester can only be fitted onto the serration of the toothed belt sprocket from the front side.*
- ◆ *The crankshaft arrester -T10100- must not be used as a counterholder when releasing or tightening the bolt for the crank-shaft toothed belt sprocket.*



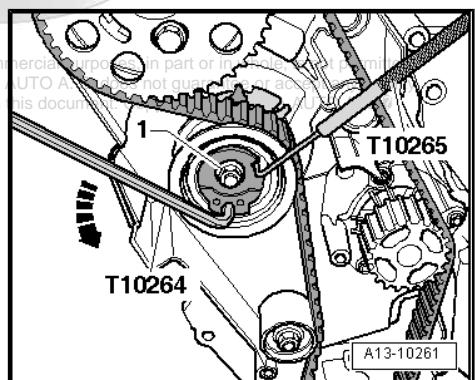
Note

Mark the direction of rotation of the toothed belt with chalk or a felt-tip pen.

- Slacken screws -arrows- of camshaft sprocket by one screw revolution.

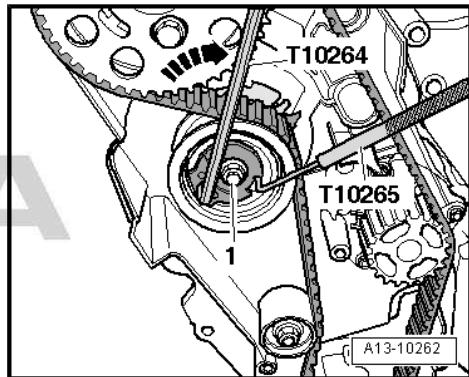


- Loosen the fixing nut -1- of the tensioning pulley.
- Carefully turn eccentric of the tensioning pulley with offset screwdriver -T10264- in anti-clockwise direction -arrow- until the tensioning pulley can be interlocked with rig tool -T10265- .





- Now turn eccentric of the tensioning pulley clockwise -arrow- as far as the stop and tighten fixing nut -1- by hand.
- Remove high pressure pipe -21-
 ⇒ [“1.5 Summary of components - toothed belt \(Superb II\)”, page 43](#).
- First of all take toothed belt off crankshaft toothed belt sprocket and then from the other pulleys.



1.6.2 Installing (set the timing)

(Superb II)

- Interlock camshaft with locking pin e. g. -3359-
- Interlock crankshaft with crankshaft arrester - T10100- .
- Interlock tensioning pulley in released position with fixing nut.



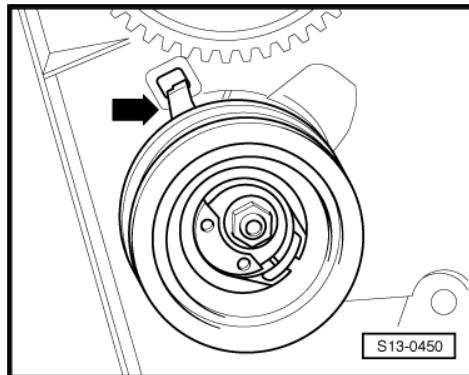
Note

◆ *Always perform adjusting work on the timing belt only on a cold engine.*

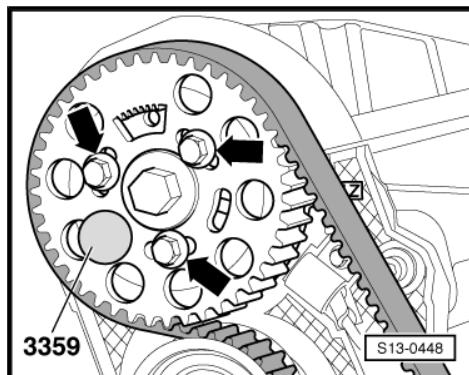
◆ *When rotating the camshaft, the crankshaft must not be positioned at TDC for any one piston. Risk of damaging valves and pistons.*

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- Check the correct fitting of the tensioning pulley in the hole in the rear timing belt guard -arrow-.



- Slightly screw in screws -arrows-.
- It must still be possible to turn the camshaft sprocket on the hub, however it must not hang loose.
- Turn camshaft sprocket clockwise in the elongated holes as far as the stop.
- Fit toothed belt onto crankshaft toothed belt sprocket, tensioning pulley, camshaft and, last of all, onto the toothed belt sprocket of the coolant pump.
- Install toothed belt guide pulley, Pos. -21-
 ⇒ [“1.5 Summary of components - toothed belt \(Superb II\)”, page 43](#) .
- Remove rig tool -T10265- from the tensioning pulley.



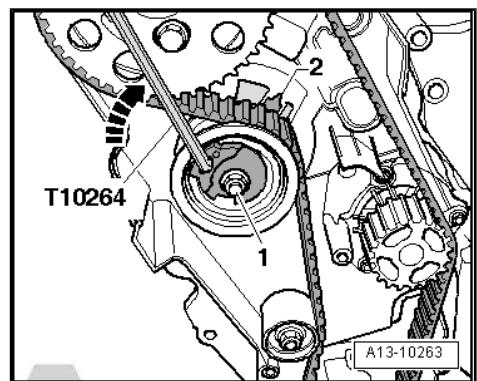


- Loosen the fixing nut -1- of the tensioning pulley.
- Turn the eccentric of the tensioning pulley with offset screwdriver -T10264- clockwise -arrow- in such a way until the pointer -2- stands in the centre of the base plate in the gap.

Note

Ensure that the fixing nut does not turn.

- Hold the eccentric of the tensioning pulley in this position and tighten the fixing nut to 20 Nm and torque a further 45°.



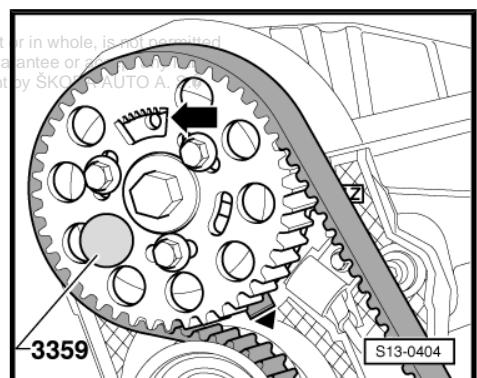
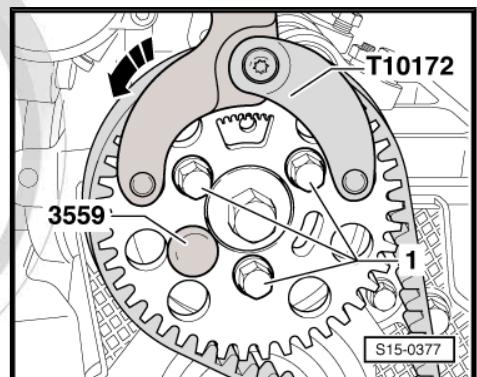
Note

When tightening the fixing nut, the pointer -arrow- turns max. 5 mm to the right from the clearance gap of the base plate. This position must not be corrected, because the toothed belt settles when running-in.

- Insert counterholder -T10172- with bolts -T10172/4- as shown and press in -direction of arrow-.
- Hold camshaft sprocket pretensioned with the counterholder -T10172- and tighten screws -1- to 20 Nm tighten + torque a further 45°.
- Remove locking pin -3359- and crankshaft arrester - T10100- .

Test timing

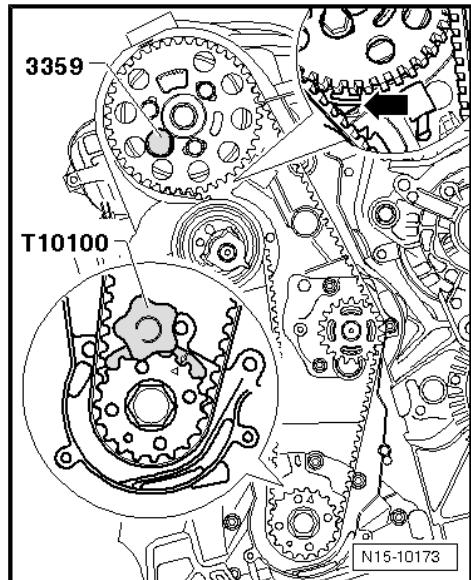
- Turn the crankshaft 2 turns in the direction of rotation of the engine until the crankshaft is positioned shortly before TDC for cylinder 1.
- Interlock during this motion the hub in the direction of running of the engine with locking pin -3359-



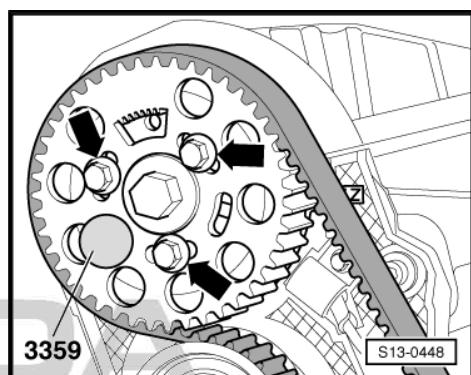


- Check whether:
 - ◆ The crankshaft can be interlocked with the crankshaft arrester -T10100- .
 - ◆ The pointer of tensioning pulley stands in the centre or max. 5 mm to the right from the gap of the base plate.

If the crankshaft cannot be arrested



- Loosen the screws -arrows- of the camshaft sprocket.

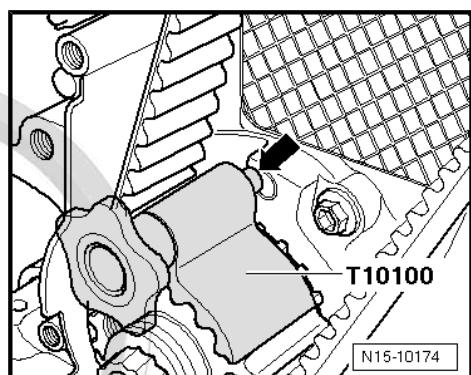


- Rotate crankshaft in direction of rotation of engine until the crankshaft can be arrested with the crankshaft arrester -T10100- in the hole in the sealing flange -arrow-.



Note

If the crankshaft can be turned behind the TDC for cylinder 1, turn crankshaft back slightly and once again set to the TDC for cylinder 1 by turning in direction of rotation of engine.





- Insert counterholder -T10172- with bolts -T10172/4- as shown and press in -direction of arrow-.
- Hold camshaft sprocket pretensioned with the counterholder -T10172- and tighten screws -1- to 20 Nm tighten + torque a further 45°.
- Remove rig pin -3359- and crankshaft arrester -T10100- .
- Turn crankshaft 2 turns in the direction of running of the engine until the crankshaft is again on TDC.
- Repeat timing test [⇒ page 51](#) .

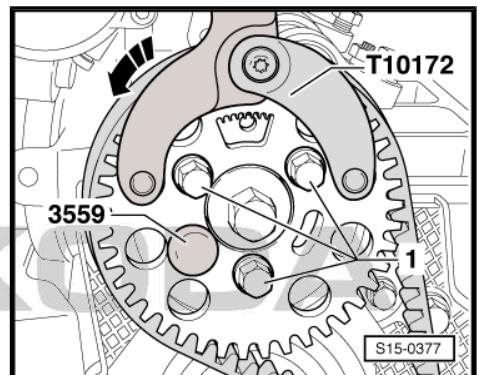
Proceed with installation

Installation is carried out in the reverse order. When installing, note the following:



Caution

The tightening sequence and the tightening torques of the fixing screws for the engine mount must definitely be respected. Otherwise stress of the engine mount occurs, which results in the breaking of the engine mount.

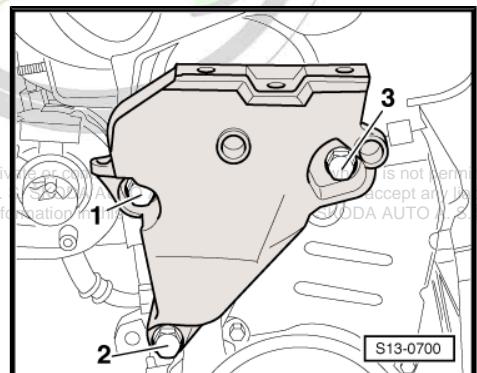


- Screw in screws -1...3- by hand first.
- Tighten screws in the order shown -1...3- to 40 Nm + torque a further 180°.



Note

- ◆ *To do so, raise or lower engine with the supporting device - AUTO A. MP9-200 (10-222A)- .*
- ◆ *The engine support must be tightened up firmly before further installation of the right engine mounting.*



- Install and adjust the right engine mounting
⇒ [“1.6.2 Adjusting the unit mounting”, page 30](#) .
- Install bottom and middle toothed belt guard.
- Install the V-ribbed belt and tensioning device.
- Install the V-ribbed belt
⇒ [“1.2 Removing and installing V-ribbed belt \(Octavia II, Superb II\)”, page 36](#) .
- Install top toothed belt guard.
- Install charge air pipes and charge air hoses:
- ◆ Engine identification characters BXE
⇒ [“2.5.1 Summary of components for engine with identification characters BXE”, page 324](#) .
- ◆ Engine identification characters BLS
⇒ [“2.5.2 Summary of components for engine with identification characters BLS”, page 326](#) .
- Install the front right wheelhouse liner ⇒ Body Work; Rep. gr. 66 .
- Install fuel filter and coolant expansion reservoir.

1.7 Summary of components - toothed belt (Octavia II)


1 - Top toothed belt guard

- to remove, remove the right charge air pipe
- when installing, carefully insert into the middle toothed belt guard

2 - Screw

- Replace after disassembly
- to release and tighten use the counterholder - T10051-
- 100 Nm

3 - Screw

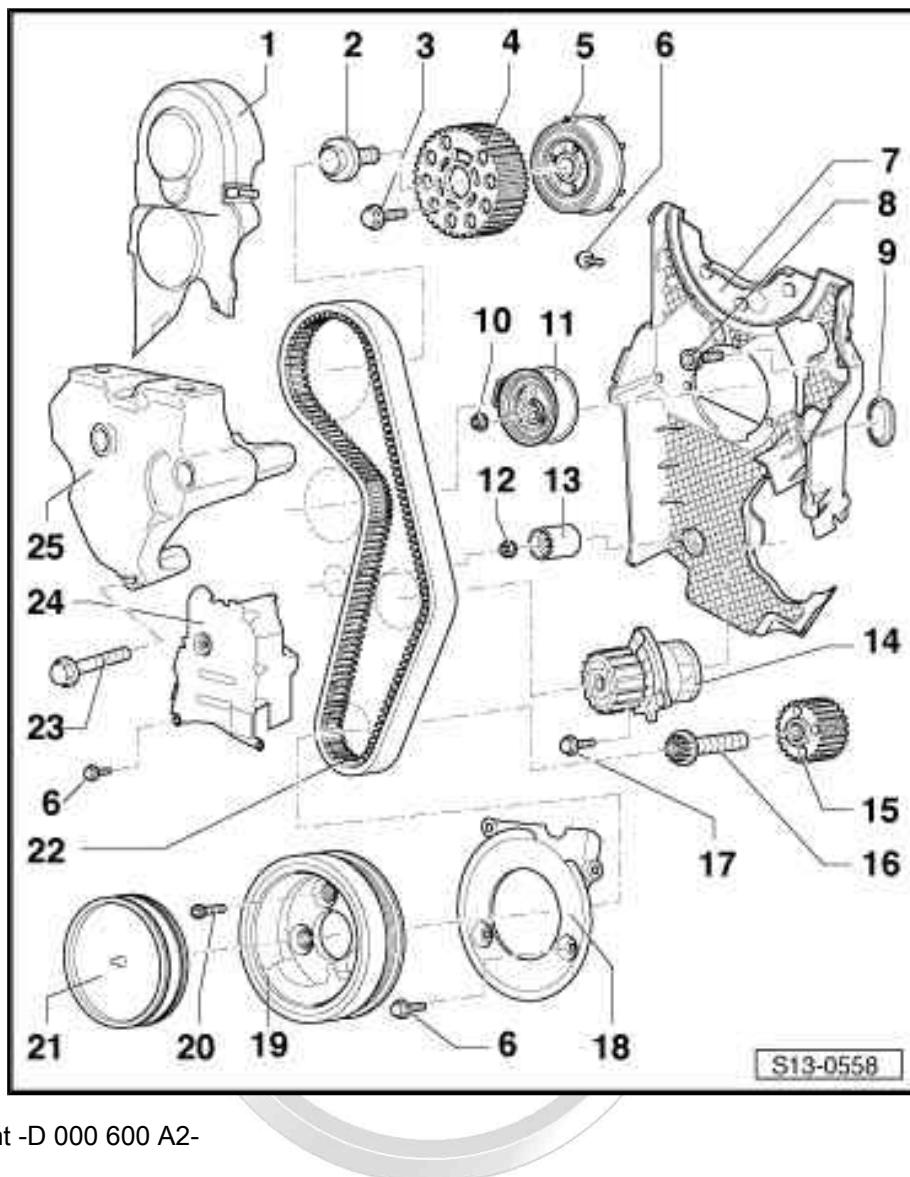
- Replace after disassembly
- 20 Nm + 45°

4 - Camshaft pulley

- Mark installation position

5 - Hub

- with sensor rotor for the Hall sensor -G40-
- to release and tighten use the counterholder - T10051-
- to remove the extractor -T10052- use
- removing and installing
⇒ ["2.3 Replacing cam-shaft gasket ring"](#),
page 150


6 - Screw

- insert using locking agent -D 000 600 A2-
- 10 Nm

7 - Rear toothed belt guard

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- to remove, unscrew coolant pump
- When installing carefully insert into the front sealing flange

8 - Screw

- 25 Nm

9 - Rubber grommet

- replace if damaged

10 - Nut

- 20 Nm + 45°

11 - Tensioning pulley

- The eccentric of the new version has an additional hole for 6 mm hexagon socket wrench
⇒ ["Tensioning pulley"](#), page 56

12 - Nut

- 22 Nm



13 - Guide pulley

14 - Coolant pump

- removing and installing [“1.8 Removing and installing coolant pump”, page 210](#)

15 - Crankshaft - toothed belt sprocket

- there must not be any oil present on the contact surface between the toothed belt sprocket and the crankshaft
- can be installed only in one position

16 - Screw

- Replace after disassembly
- do not oil
- to release and tighten use the counterholder -T30004-
- 120 Nm + 90°

17 - Screw

- 13 Nm

18 - Bottom toothed belt guard

19 - Poly V-belt pulley

- with vibration damper
- Adjust TDC with the vibration damper fitted
[⇒ Fig. “Adjust TDC with the vibration damper fitted”, page 56](#)

20 - Screw

- Replace after disassembly
- 10 Nm + 90°

21 - Cap

- mounted up to 05.05

22 - Toothed belt

- mark the direction of rotation with chalk or a felt-tip pen before removing
- check for wear
- removing [“1.8.1 Removing”, page 57](#)
- install (set the timing) [“1.8.2 Installing \(set the timing\)”, page 60](#)



Note

If the toothed belt is replaced within the scope of engine repair (apart from change intervals), it should be entered in the Service Schedule!



23 - Screw

- Replace after disassembly
- observe the order of tightening up [⇒ Fig. “Tightening order for engine support”, page 57](#)
- 40 Nm + 180°

24 - Middle toothed belt guard

- Adjust TDC with the vibration damper fitted
[⇒ Fig. “Adjust TDC with the vibration damper fitted”, page 56](#)
- to remove, remove top toothed belt guard and unscrew tensioning device for ribbed V-belt.

25 - Engine support bracket

- from 05.2005 to 05.2007 the engine support bracket is mounted with another support
[⇒ Fig. “Engine support bracket”, page 56](#)

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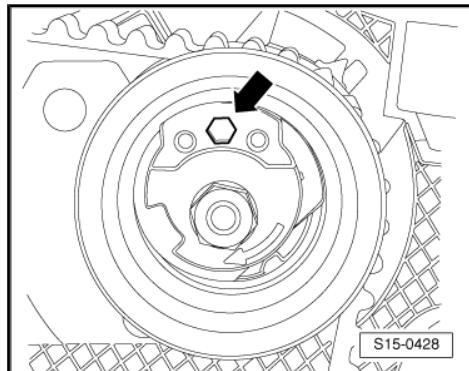


Tensioning pulley

Additional hole -arrow- in the eccentric of the tensioning pulley for 6 mm hexagon socket wrench.

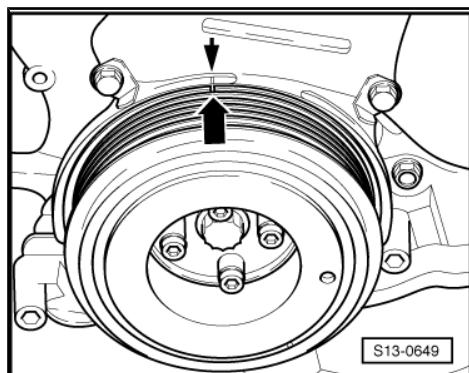


The tensioning pulley of the new version can be adjusted with the special two-hole nut turner - T10020- or using a commercial 6 mm hexagon socket wrench.



Adjust TDC with the vibration damper fitted

Bring the TDC marking on the vibration damper into alignment with the marking on the bottom toothed belt guard as shown.

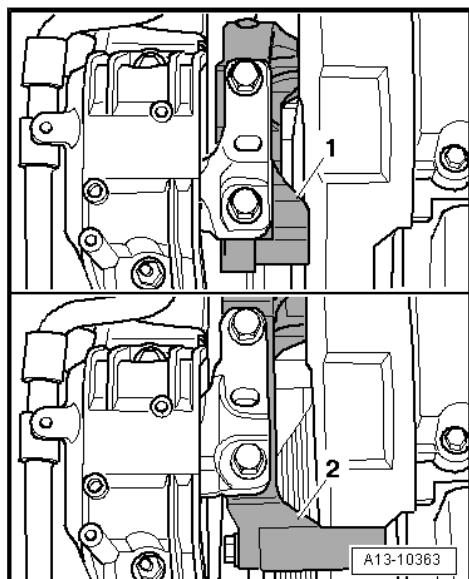


Engine support bracket

The engine support bracket -2- is mounted on vehicles from 05.2005 to 05.2007. The engine support bracket -1- is mounted on all other vehicles.



The engine support bracket -2- must not be removed when removing the toothed belt!





Tightening order for engine support

I: Engine support bracket for vehicles built between 05.2005 and 05.2007

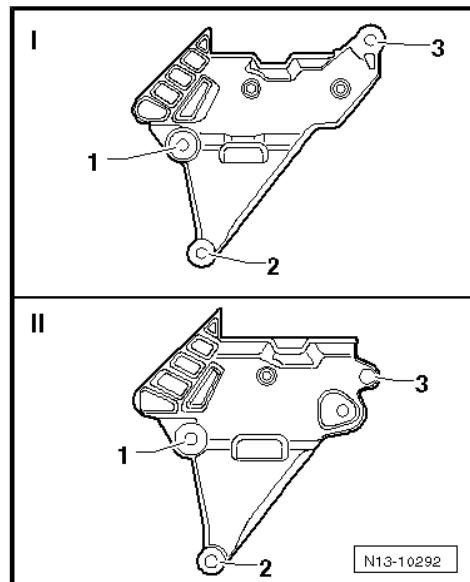
II: Engine support bracket except vehicles manufactured during the period of time from 05.2005 to 05.2007



Caution

The tightening sequence and the tightening torques of the fixing screws for the engine support must definitely be respected. Otherwise stress of the engine support occurs, which results in the breaking of the engine support.

- Screw in screws -1...3- by hand first.
- Tighten screws in the order shown -1...3- to 40 Nm + torque a further 180°.



Note

- ◆ To do so, raise or lower engine with the supporting device - T30099- .
- ◆ Before the assembly carrier is installed, all the screws of the engine support must be tightened to the specified tightening torque.

1.8 Removing and installing toothed belt (Octavia II)

⇒ "1.8.1 Removing", page 57

⇒ "1.8.2 Installing (set the timing)", page 60

1.8.1 Removing



Note

If the toothed belt is replaced when carrying out engine repair (apart from regular change interval), it should be entered in the ⇒ Service Schedule !

Special tools and workshop equipment required

- ◆ Supporting device - T30099-
- ◆ Surface - T30099/1-
- ◆ Hook - MP9-200/10-
- ◆ Locking pin - 3359- or -MP1-301-
- ◆ Crankshaft arrester - T10050- or crankshaft arrester - T10100-
- ◆ Offset screwdriver - T10264-
- ◆ Rig tool - T10265-
- ◆ Counterholder - T10172- with bolts - T10172/4-
- ◆ Pliers for spring strap clamps

◆ **Locking agent** D 000 600 A2 - for special purposes, in part or in whole, is not permitted unless authorised by SKODA AUTO A. S. SKODA AUTO A. S. does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by SKODA AUTO A. S.



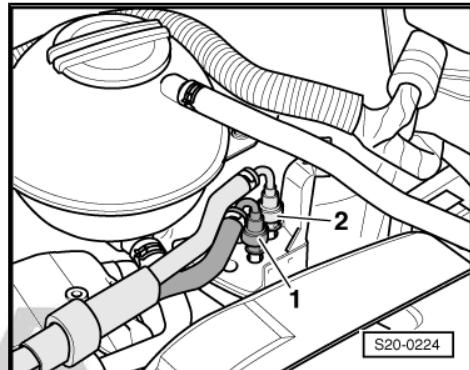
Note

Mark the direction of rotation with chalk or a felt-tip pen before removing the V-ribbed belt. Reversing the rotation direction of an already used belt may destroy it.

- Remove V-ribbed belt
[⇒ "1.2 Removing and installing V-ribbed belt \(Octavia II, Superb II\)", page 36](#).
- Remove charge air hose to connection fitting of engine.
- Unscrew the coolant expansion bottle and place with connected hoses onto the cylinder head cover.
- Remove fuel feed line -2- and fuel return line -1-, to do so press latch clips.

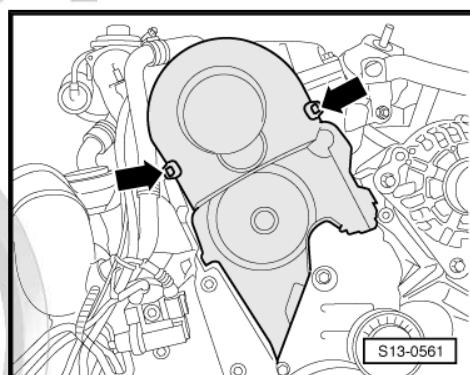
For vehicles manufactured up to 05.05

- Remove fuel filter bracket.



Continued for all vehicles

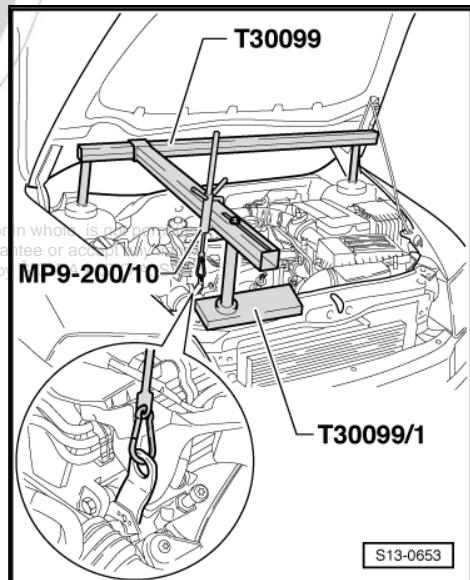
- Remove top toothed belt guard, to do so release retaining clips -arrows-.
- Remove ribbed V-belt tensioning device.
- Remove the bottom part of the wheelhouse liner ⇒ Body Work; Rep. gr. 66 .
- Remove V-ribbed belt pulley with vibration damper.
- Unscrew bottom and middle toothed belt guard.



Except vehicles manufactured during the period of time from 05.2005 to 05.2007

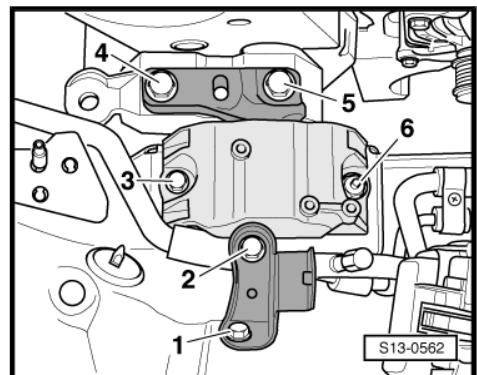
- Position the supporting device -T30099- and the base -T30099/1- on the body, suspend the engine on the right lifting eye with hook -MP9-200/10- and preload via the spindle, however do not lift.

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- Release screws -1- and -2- and remove connecting stud.
- Unscrew screws -3 ... 6- and remove engine mount console.



- Release screws -1...3- and remove engine support.

Note

To release the bolts for the engine support, raise or lower engine slightly via spindle of supporting device - T30099- .

Continued for all vehicles



Note

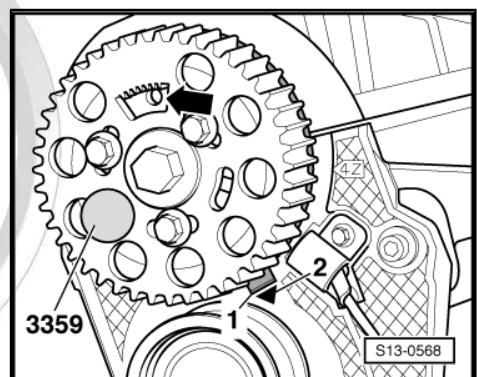
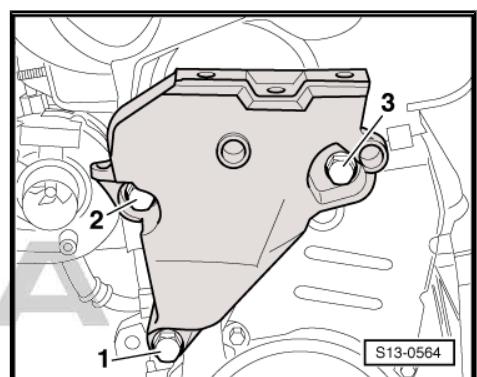
Turn engine at hexagonal head of central screw at front end of the crankshaft, if necessary using counterholder -T10172- or using counterholder -MP1-216 (3036)- at camshaft sprocket.

- Rotate crankshaft to TDC for cylinder 1.
- The gear segment -arrow- must point upwards.
- The lug -1- on the wheel of the camshaft position sensor must be opposite the marking -2- on the rear toothed belt guard.

Note

To provide a clearer illustration, the camshaft sprocket is illustrated without the toothed belt.

- Lock hub with rig pin -3359- .



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- Depending on the version, lock the crankshaft toothed belt sprocket with the crankshaft arrester -T10050- or crankshaft arrester -T10100- .

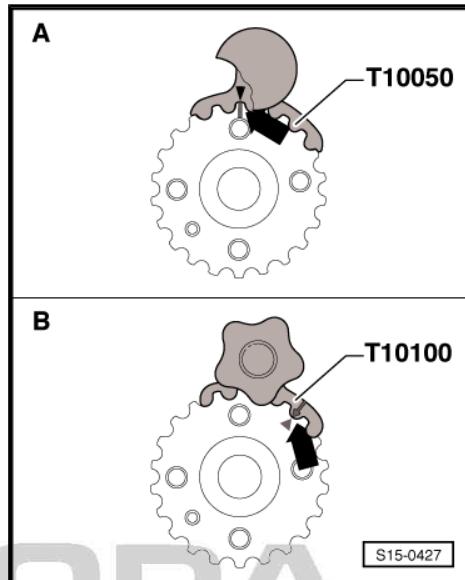
Version of the crankshaft toothed belt sprocket

A = original version of toothed belt sprocket with circular tooth flanks, rectangular TDC marking at tooth in 12 o'clock position - use crankshaft arrester -T10050- .

B = new version of toothed belt sprocket with elliptical tooth flanks, triangular TDC marking at tooth opening in 1 o'clock position - use crankshaft arrester -T10100- .

Note

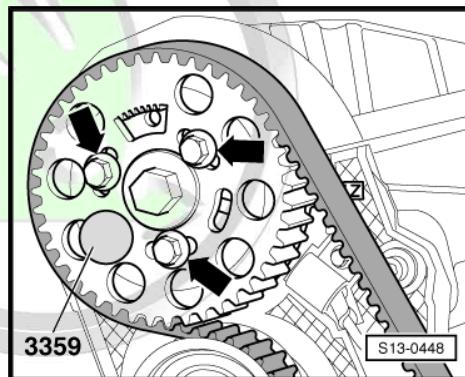
- ◆ *Markings on the toothed belt sprocket and on the crankshaft arrester must be in line with each other -arrow-. The stud on the crankshaft arrester must engage into the hole in the sealing flange.*
- ◆ *The crankshaft arrester can only be fitted onto the serration of the toothed belt sprocket from the front side.*



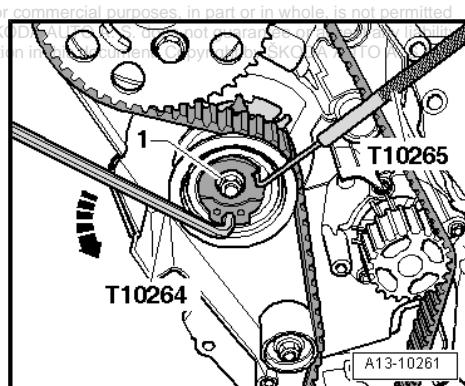
Note

Mark the direction of rotation of the toothed belt with chalk or a felt-tip pen.

- Slacken screws -arrows- of camshaft sprocket by one screw revolution.
- Loosen the fixing nut -1- of the tensioning pulley.



- Carefully turn eccentric of the tensioning pulley with offset screwdriver -T10264- in anti-clockwise direction -arrow- until the tensioning pulley can be interlocked with rig tool -T10265- .
- Now turn eccentric of the tensioning pulley clockwise -arrow- as far as the stop and tighten fixing nut -1- by hand.
- Remove toothed belt guide pulley -13-
⇒ "1.7 Summary of components - toothed belt (Octavia II)", page 53 .
- First of all take toothed belt off crankshaft toothed belt sprocket and then from the other pulleys.



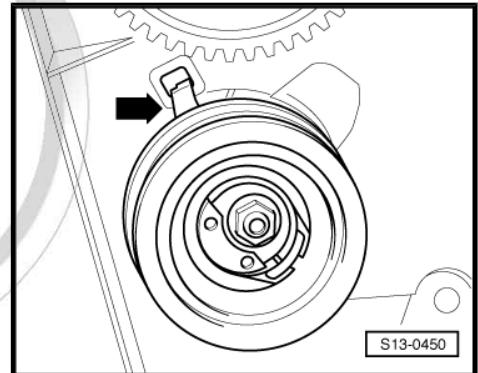
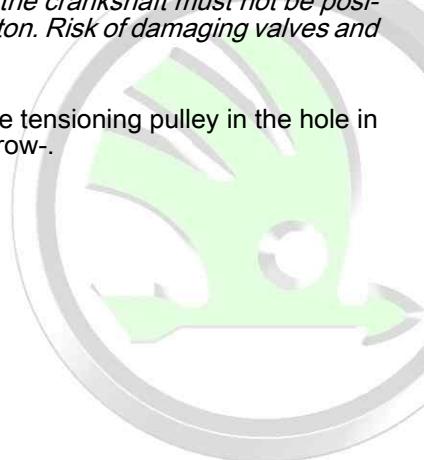
1.8.2 Installing (set the timing)

- Interlock camshaft with locking pin e. g. -3359-
- Interlock the crankshaft with the crankshaft arrester -T10050- or -T10100- .
- Interlock tensioning pulley in released position with fixing nut.

**Note**

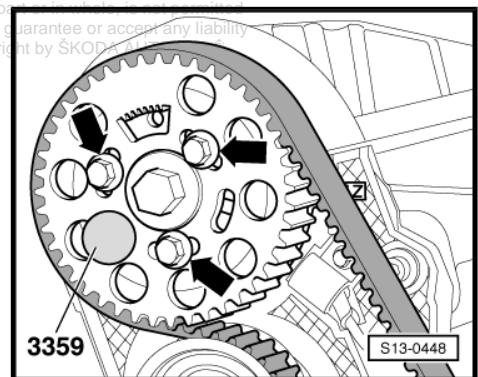
- ◆ Always perform adjusting work on the timing belt only on a cold engine.
- ◆ When rotating the camshaft, the crankshaft must not be positioned at TDC for any one piston. Risk of damaging valves and pistons.
- Check the correct fitting of the tensioning pulley in the hole in the rear timing belt guard -arrow-.

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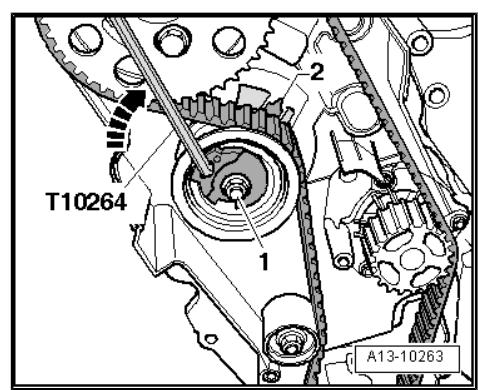
S13-0450

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- Slightly screw in screws -arrows-.
 - It must still be possible to turn the camshaft sprocket on the hub, however it must not hang loose.
 - Turn camshaft sprocket clockwise in the elongated holes as far as the stop.
 - Fit toothed belt onto crankshaft toothed belt sprocket, tensioning pulley, camshaft and, last of all, onto the toothed belt sprocket of the coolant pump.
 - Install toothed belt guide pulley, Pos. -13-
→ [“1.7 Summary of components - toothed belt \(Octavia II\)”, page 53](#).
 - Remove rig tool -T10265- from the tensioning pulley.
 - Loosen the fixing nut -1- of the tensioning pulley.
 - Turn the eccentric of the tensioning pulley with offset screwdriver -T10264- clockwise -arrow- in such a way until the pointer -2- stands in the centre of the base plate in the gap.



3359

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**Note**

Ensure that the fixing nut does not turn.

- Hold the eccentric of the tensioning pulley in this position and tighten the fixing nut to 20 Nm and torque a further 45°.

**Note**

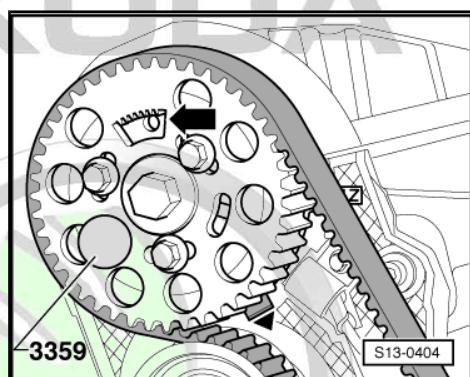
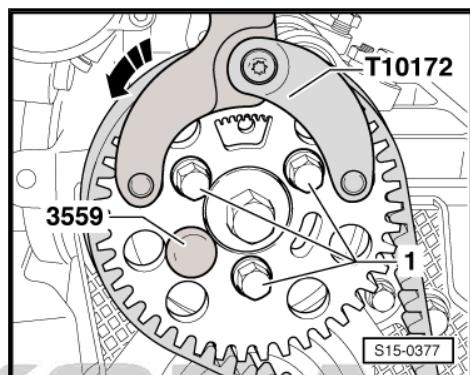
When tightening the fixing nut, the pointer -arrow- turns max. 5 mm to the right from the clearance gap of the base plate. This position must not be corrected, because the toothed belt settles when running-in.



- Insert counterholder -T10172- with bolts -T10172/4- as shown and press in -direction of arrow-.
- Hold camshaft sprocket pretensioned with the counterholder -T10172- and tighten screws -1- to 20 Nm tighten + torque a further 45°.
- Remove rig pin -3359- and crankshaft arrester -T10050- .

Test timing

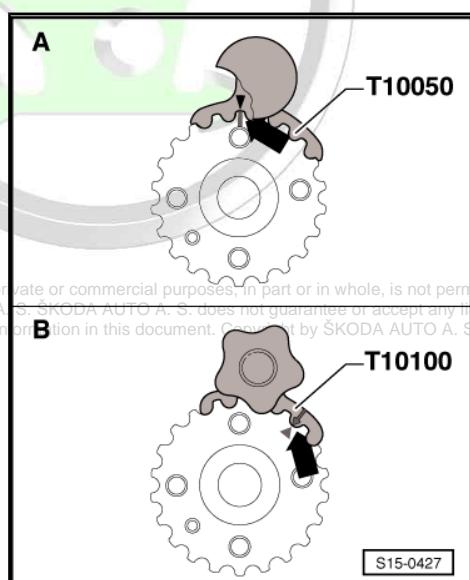
- Turn the crankshaft 2 turns in the direction of rotation of the engine until the crankshaft is positioned shortly before TDC for cylinder 1.
- Interlock during this motion the hub in the direction of running of the engine with locking pin -3359- .



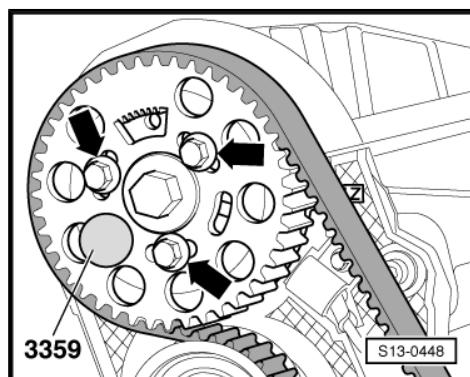
- Check whether:
 - ◆ The crankshaft can be interlocked with the crankshaft arrester -T10050- or crankshaft arrester -T10100- ;
 - ◆ The pointer of tensioning pulley stands in the centre or max. 5 mm to the right from the gap of the base plate.

If the crankshaft cannot be arrested

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- Loosen the screws -arrows- of the camshaft sprocket.



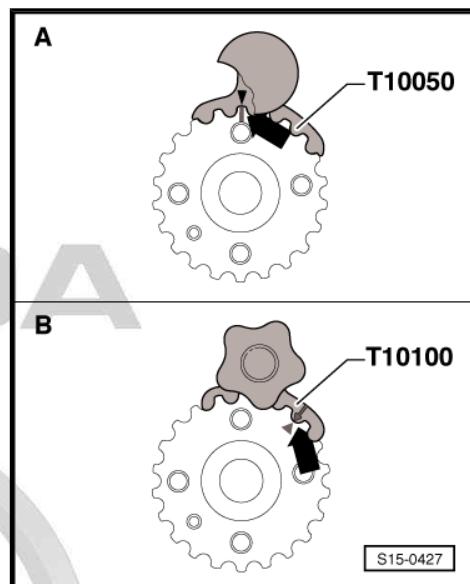


- Rotate crankshaft in direction of rotation of engine until it can be interlocked with the crankshaft arrester -T10050- or crankshaft arrester -T10100- .



Note

If the crankshaft can be turned behind the TDC for cylinder 1, turn crankshaft back slightly and once again set to the TDC for cylinder 1 by turning in direction of rotation of engine.

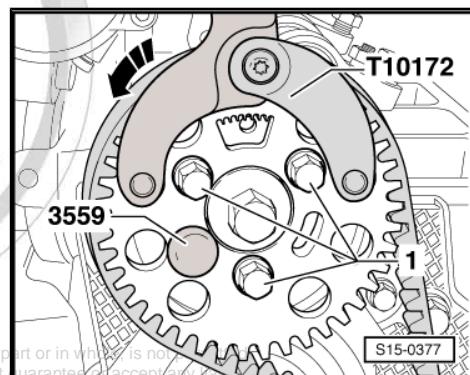


- Insert counterholder -T10172- with bolts -T10172/4- as shown and press in -direction of arrow-.
- Hold camshaft sprocket pretensioned with the counterholder -T10172- and tighten screws -1- to 20 Nm tighten + torque a further 45°.
- Remove rig pin -3359- and crankshaft arrester -T10050- or crankshaft arrester -T10100- .
- Turn crankshaft 2 turns in the direction of running of the engine until the crankshaft is again on TDC.
- Repeat timing test [⇒ page 62](#).

Proceed with installation

Installation is carried out in the reverse order. When installing, note the following:

Except vehicles manufactured during the period of time from 05.2005 to 05.2007





- Install engine support. Screw un screws -1 ... 3- by hand first, then tighten to 40 Nm + torque a further 90°.

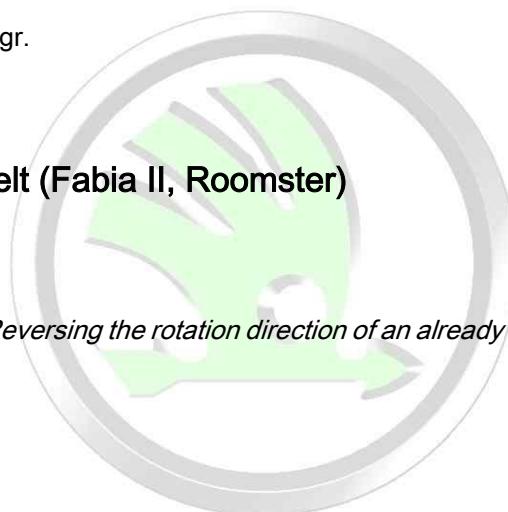
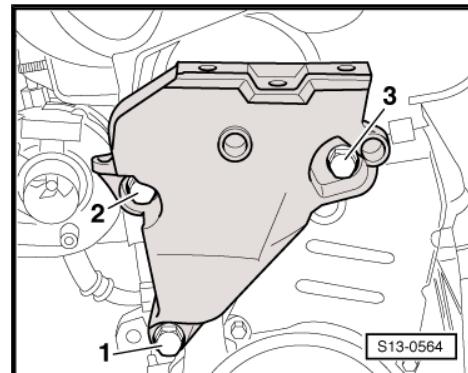
Note

The engine support must be tightened up firmly before further installation of the right engine mounting.

- Install and adjust the right engine mounting
[⇒ “1.4 Installing \(Octavia II, Superb II\)”, page 20](#) .

Continued for all vehicles

- Install bottom and middle toothed belt guard.
- Install the V-ribbed belt and tensioning device.
- Install the V-ribbed belt [⇒ page 37](#) .
- Install top toothed belt guard.
- Install charge air pipes and charge air hoses:
- ◆ Engine identification characters BJB, BKC, BXE
[⇒ “2.6.1 Summary of components for engine with engine identification characters BJB, BKC, BXE”, page 327](#) .
- ◆ Engine identification characters BLS
[⇒ “2.6.2 Summary of components for engine with identification characters BLS”, page 328](#) .
- Install the front right wheelhouse liner ⇒ Body Work; Rep. gr. 66 .
- Install fuel filter and coolant expansion reservoir.



1.9 Summary of components - toothed belt (Fabia II, Roomster)

Note

Mark the running direction before removing the toothed belt. Reversing the rotation direction of an already used belt may destroy it.

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1 - Top toothed belt guard
2 - Toothed belt

- before removing mark running direction
- check for wear
- do not kink
- removing
⇒ [“1.10.1 Removing”, page 67](#)
- installing
⇒ [“1.10.2 Install”, page 70](#)


Note

If the toothed belt is replaced within the scope of engine repair (apart from change intervals), it should be entered in the Service Schedule.

3 - Nut

- 20 Nm + 45°

4 - Tensioning pulley

- ⇒ [Fig. “Tensioning pulley”, page 66](#)

5 - Screw

- Replace after disassembly
- 20 Nm + 45°

6 - Camshaft pulley
7 - Screw

- Replace after disassembly
- 100 Nm

8 - Hub

- with rotor
- to release and tighten use the counterholder -T10051-
- to remove the extractor -T10052- use
- removing and installing ⇒ [“2.3 Replacing camshaft gasket ring”, page 150](#)

9 - Screw

- 10 Nm

10 - Rear toothed belt guard
11 - Grommet

- replace if damaged

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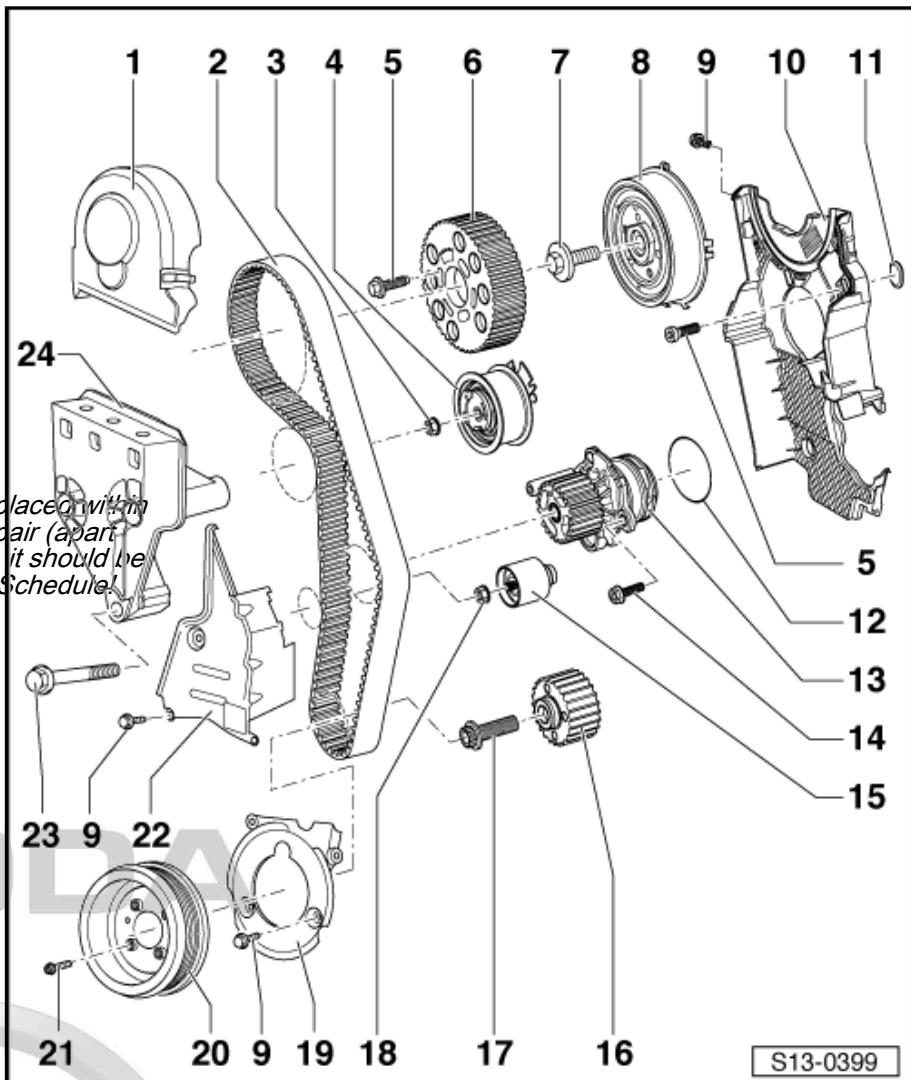
- Replace after disassembly

13 - Coolant pump

- removing and installing ⇒ [“1.8 Removing and installing coolant pump”, page 210](#)

14 - Screw

- 15 Nm



S13-0399



15 - Guide pulley

16 - Crankshaft - toothed belt sprocket

- Contact surface between crankshaft toothed belt sprocket and crankshaft must be clean and free of grease
- Fitting position: flats on timing belt sprocket and crankshaft must be aligned

17 - Screw

- Replace after disassembly
- to release and tighten the counterholder -MP1-310 (3099)- or -T30004- use
- do not wet new screws with oil and do not grease them
- 120 Nm + 90°

18 - Nut

- 20 Nm + 45°

19 - Bottom toothed belt guard

20 - Poly V-belt pulley

- with vibration damper
- Assembly only possible in one position - holes offset
- Set TDC for cylinder 1 [⇒ Fig. “Adjust TDC with the vibration damper fitted”](#), page 66

21 - Screw

- Replace after disassembly
- 10 Nm + 90°

22 - Middle toothed belt guard

23 - Screw

- 45 Nm

24 - Engine mounting

Tensioning pulley

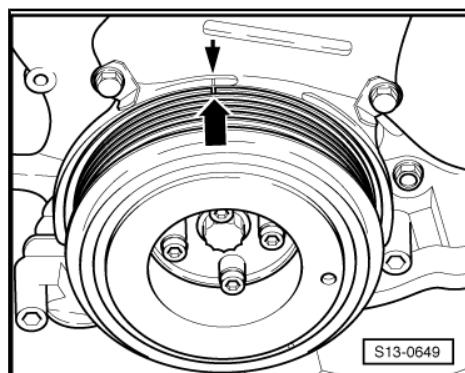
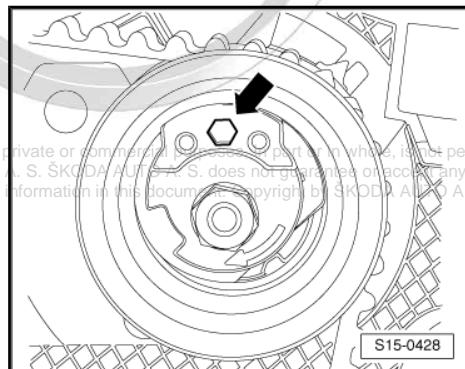
The additional hole in the eccentric of the tensioning pulley -arrow- for bent screwdriver -T10264- (where necessary, hexagon socket wrench 6 mm).



The tensioning pulley of the new version can be adjusted with the special two-hole nut turner -T10020- or using a commercial 6 mm hexagon socket wrench.



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Adjust TDC with the vibration damper fitted

Bring the TDC marking on the vibration damper into alignment with the marking on the bottom toothed belt guard as shown.



1.10 Removing and installing toothed belt (Fabia II, Roomster)

⇒ “1.10.1 Removing”, page 67

⇒ “1.10.2 Install”, page 70

⇒ “1.10.3 Test timing”, page 71

1.10.1 Removing

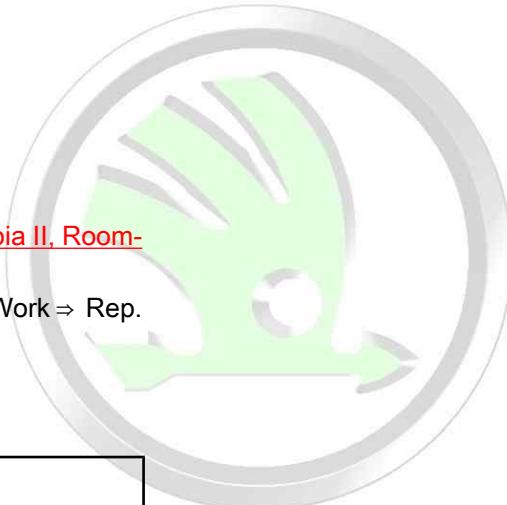


If the toothed belt is replaced within the scope of engine repair (apart from change intervals), it should be entered in the Service Schedule!

Special tools and workshop equipment required

- ◆ Locking pin - 3359- or -MP1-301-
- ◆ Supporting device - MP9-200 (10-222A)-
- ◆ Securing plate - T10008-
- ◆ Crankshaft arrester - T10050- or crankshaft arrester - T10100-
- ◆ Offset screwdriver - T10264-
- ◆ Rig tool - T10265-
- ◆ Pliers for spring strap clamps
- ◆ Liquid locking material - D 000 600 A2-
- Remove V-ribbed belt
⇒ “1.4 Removing and installing V-ribbed belt (Fabia II, Roomster)”, page 41 .
- Remove the front right wheelhouse liner ⇒ Body Work ⇒ Rep. gr. 66 .
- Removing the V-ribbed belt pulley.
- Remove middle and bottom toothed belt guard.

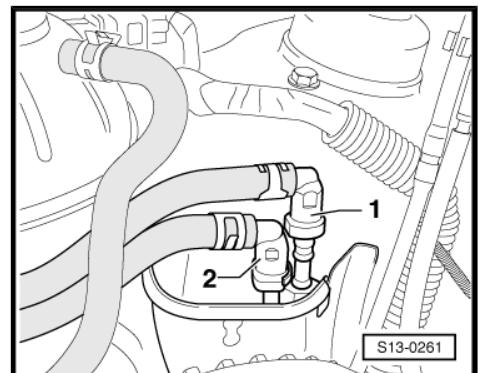
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WARNING

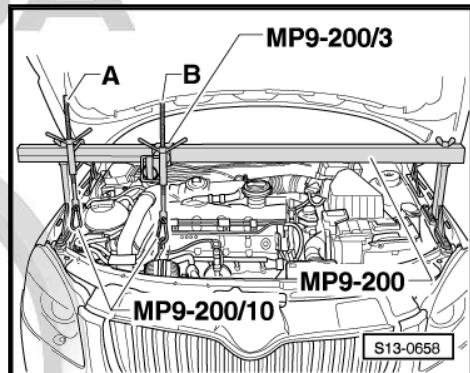
The fuel line is under pressure. Place cleaning cloths around the connection point before detaching hose connections. Reduce pressure by carefully removing the hose.

- Disconnect the fuel feed line -1- and the fuel return-flow line -2-.
- Remove expansion reservoir and place down to the front with coolant hoses connected.
- Remove fuel filter from bracket and lay to the side at the point of the coolant expansion bottle.





- Install supporting device -MP9-200 (10-222A)- and support the engine with spindle -B- in fitting position. Allow spindle -A- to hang loosely.

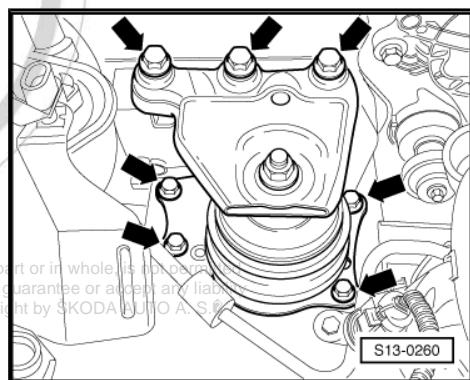


- Remove engine mount -arrows-.



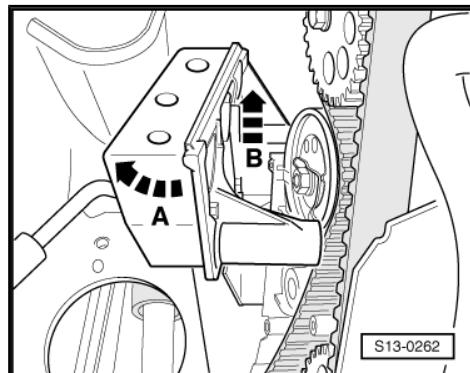
Releasing the pendulum support brings the engine slightly forwards and the engine mounting can be removed.

- Unbolt the pendulum support from the gearbox.
- Remove top toothed belt guard.
- Lower engine approx. 35 mm and release bottom screw of the engine mounting.
- Raise the engine approx. 45 mm relative to its normal position and release the top screws of the engine mounting.
- Swivel the front engine mounting outwards and upwards -arrow A- and then pull it out to the top at the rear -arrow B-.
- Lower engine again into normal position.



Turn engine at hexagonal head of central screw at front end of the crankshaft, if necessary using counterholder -T10172- or using counterholder -MP1-216 (3036)- at camshaft sprocket.

- Position crankshaft on TDC for cylinder 1.

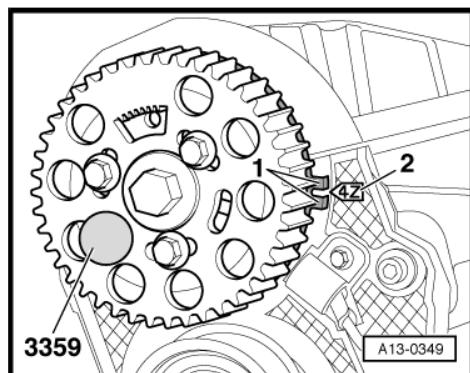


Engines with engine code AXR, BSW

- The gear segment must point upwards.
- The gap -1- between the pegs of the rotor of the camshaft position sensor must be opposite the marking "arrow 4Z" -2- on the rear toothed belt guard.



To provide a clearer illustration, the camshaft sprocket is illustrated without the toothed belt.



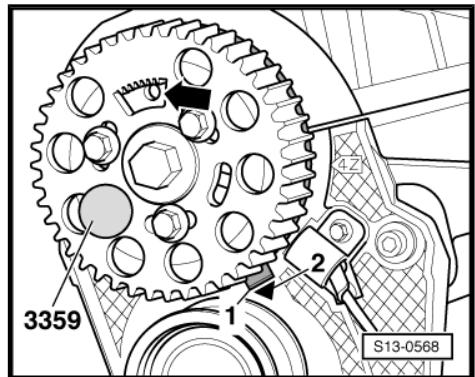


Engines with identification characters BLS

- The gear segment -arrow- must point upwards.
- The lug -1- on the wheel of the camshaft position sensor must be opposite the marking -2- on the rear toothed belt guard.



To provide a clearer illustration, the camshaft sprocket is illustrated without the toothed belt.



Continued for all vehicles

- Lock hub with locking pin -3359- or -MP1-301- .
- Depending on the version, lock the crankshaft toothed belt sprocket with the crankshaft arrester -T10050- or crankshaft arrester -T10100- .

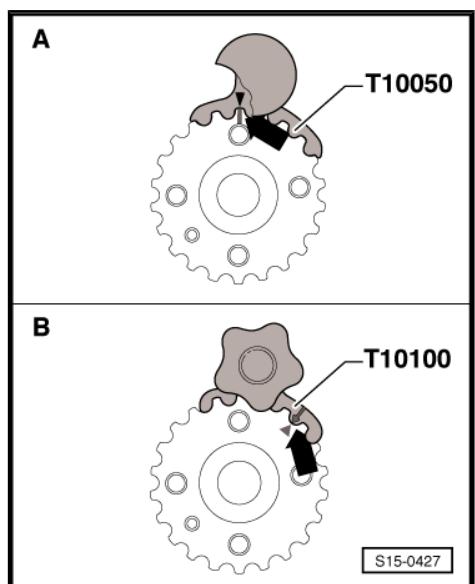
Version of the crankshaft toothed belt sprocket:

A = original version of toothed belt sprocket with circular tooth flanks, rectangular TDC marking at tooth in 12 o'clock position - use crankshaft arrester -T10050- .

B = new version of toothed belt sprocket with elliptical tooth flanks, triangular TDC marking at tooth opening in 1 o'clock position - use crankshaft arrester -T10100- .



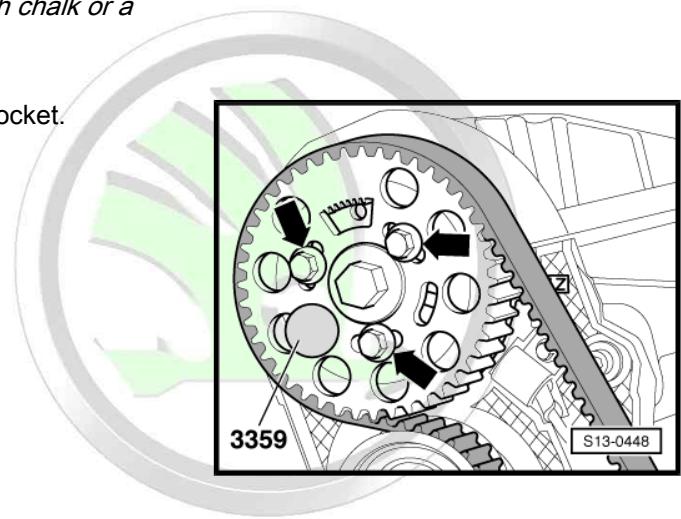
- ◆ *Markings on the toothed belt sprocket and on the crankshaft arrester must be in line with each other -arrow-. The stud on the crankshaft arrester must engage into the hole in the sealing flange.*
- ◆ *The crankshaft arrester can only be fitted onto the serration of the toothed belt sprocket from the front side.*



Mark the direction of rotation of the toothed belt with chalk or a felt-tip pen.

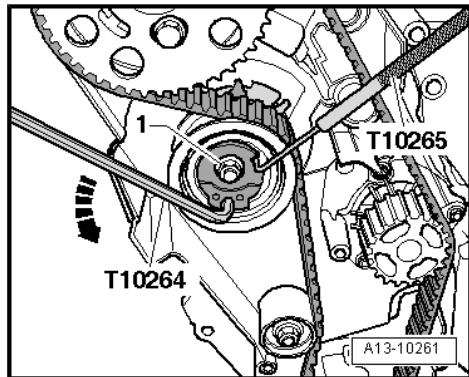
- Loosen the screws -arrows- of the camshaft sprocket.

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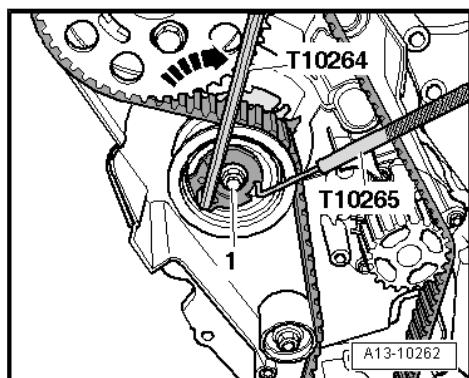




- Loosen the fixing nut -1- of the tensioning pulley.
- Carefully turn eccentric of the tensioning pulley in anti-clockwise direction -arrow- with offset screwdriver -T10264- until the tensioning pulley can be interlocked with rig tool -T10265- .



- Turn offset screwdriver -T10264- clockwise -arrow- as far as the stop and tighten fixing nut -1- by hand.
- Remove guide pulley -15-
⇒ ["1.9 Summary of components - toothed belt \(Fabia II, Roomster\)", page 64](#).
- First of all take toothed belt off crankshaft toothed belt sprocket and then from the other pulleys.



1.10.2 Install



Note

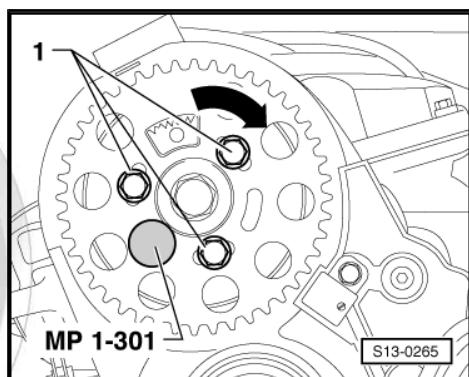
- ◆ Always perform adjusting work on the timing belt only on a cold engine.
- ◆ When rotating the camshaft, the crankshaft must not be positioned at TDC for any one piston. Risk of damaging valves and pistons.
- Turn camshaft sprocket clockwise in the elongated holes -arrow- as far as the stop.



Note

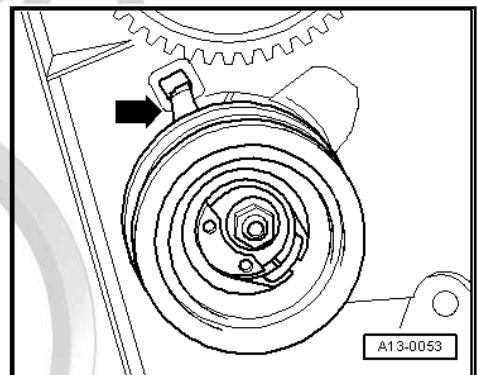
It must still be possible to turn the camshaft sprocket on the hub, however it must not hang loose.

- Interlock camshaft with locking pin e. g. -3359- or -MP 1-301- .
- Interlock the crankshaft with the crankshaft arrester -T10050- or -T10100- .
- Interlock tensioning pulley in released position with fixing nut.





- Check the correct catch fitting of the tensioning pulley in the hole in the rear timing belt guard -arrow-.
- Fit toothed belt onto crankshaft toothed belt sprocket, tensioning pulley, camshaft and, last of all, onto the toothed belt sprocket of the coolant pump.
- Install toothed belt guide pulley, Pos. -15-
⇒ [“1.9 Summary of components - toothed belt \(Fabia II, Roomster\)”, page 64](#).
- Remove rig tool -T10265- from the tensioning pulley and loosen its fixing nut.
- Turn the eccentric of the tensioning pulley with offset screwdriver -T10264- clockwise -arrow- in such a way until the pointer -2- stands in the centre of the base plate in the gap.

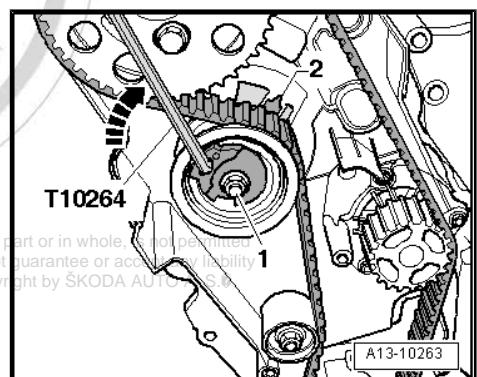


Note

Ensure that the fixing nut of the tensioning pulley does not turn.

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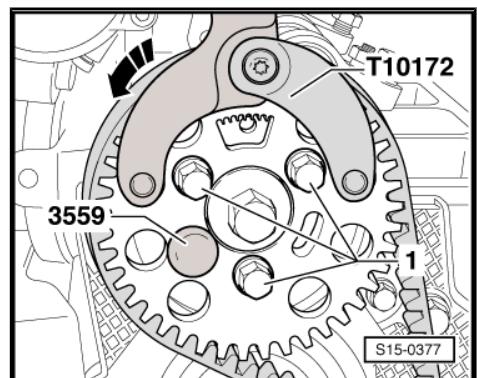
- Hold the tensioning pulley in this position and tighten the fixing nut -1- of the tensioning pulley to 20 Nm and torque a further 45°.



Note

When tightening the fixing nut, the pointer -arrow- turns max. 5 mm to the right from the gap of the base plate. This position must not be corrected, because the toothed belt settles when running-in.

- Position the counterholder -T10172- at camshaft sprocket as shown and keep the camshaft sprocket under tension in -direction of arrow-.
- Tighten the fixing screws -1- of the camshaft sprocket to 20 Nm + torque a further 45°.
- Remove locking pin -3359- or -MP1-301- and crankshaft arrester -T10050- or -T10100- .



1.10.3 Test timing

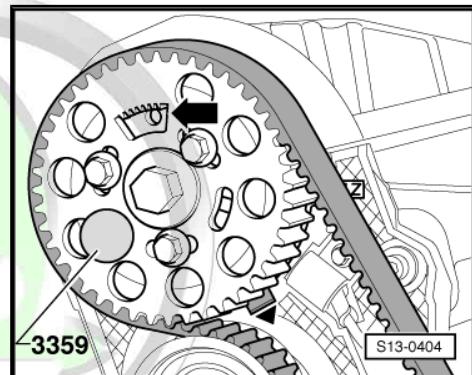
- Turn the crankshaft 2 turns in the direction of rotation of the engine until the crankshaft is positioned shortly before TDC for cylinder 1.



Note

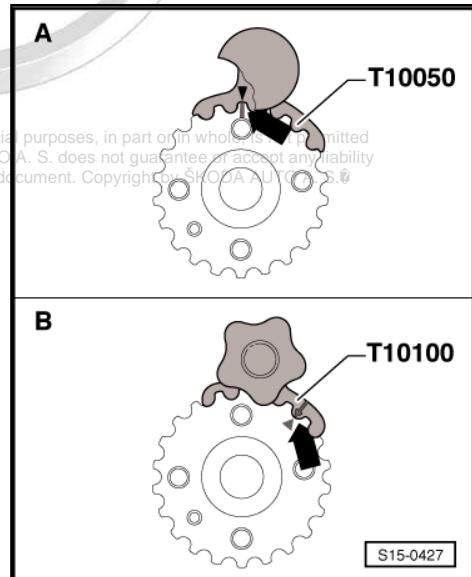
- ◆ The bolt of the crankshaft arrester -T10050- or -T10100- must engage in the sealing flange. (Crankshaft arrester should be inserted just ahead of TDC on toothed belt sprocket.)
- ◆ If the crankshaft is positioned after TDC of piston for cylinder 1 and the bolt of the crankshaft arrester does not engage in the sealing flange, rotate the crankshaft back no more than $\frac{1}{4}$ revolution and again set the crankshaft to the TDC of the piston for cylinder 1 by turning in direction of rotation of engine.
- ◆ It is not permissible to carry out the correction by turning in the opposite direction of rotation of the engine in order to insert the crankshaft arrester.
- Interlock during this motion the hub in the direction of running of the engine with locking pin -3359- or -MP1-301- .

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- Check whether:
- ◆ The crankshaft can be interlocked with the crankshaft arrester -T10050- or -T10100- .
- ◆ The pointer of tensioning pulley stands in the centre or max. 5 mm to the right from the gap of the base plate.

If the crankshaft cannot be arrested:

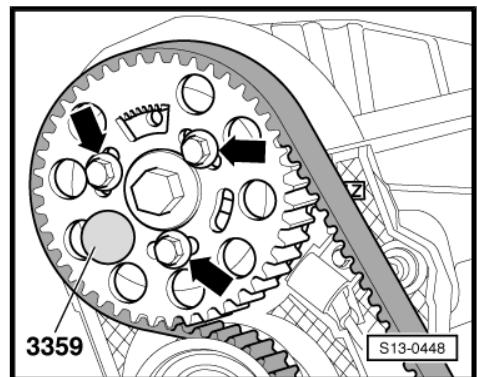




- Loosen the screws -arrows- of the camshaft sprocket.
- Rotate crankshaft in direction of rotation of engine until the crankshaft can be interlocked with the crankshaft arrester -T10050- or -T10100- .

Note

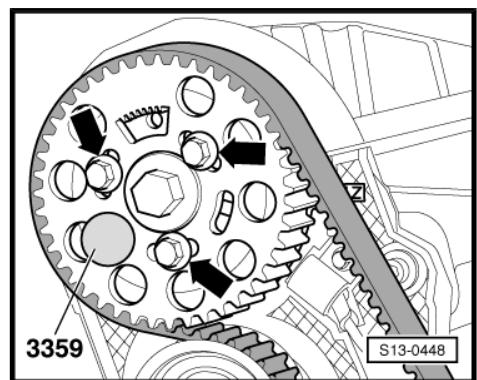
- ◆ If the crankshaft can be turned behind the TDC for cylinder 1, turn crankshaft back slightly and once again set to the TDC for cylinder 1 by turning in direction of rotation of engine.
- ◆ It is not permitted to carry out the correction by turning in the opposite direction of rotation of the engine in order to insert the crankshaft arrester.



- Tighten the camshaft sprocket screws -arrows- to tightening torque 20 Nm + torque a further 45°.
- Remove locking pin -3359- or -MP 1-301- and crankshaft arrester -T10050- or -T10100- .
- Rotate crankshaft on a further two revolutions in direction of rotation of the engine until the crankshaft is again positioned at TDC of piston of cylinder 1.
- Repeat timing test.

Installation is carried out in reverse order. Pay attention to the following:

Tightening torque of the engine mount and pendulum support
[⇒ "1.5.1 Assembly bracket", page 29](#) .



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2 Removing and installing sealing flange and flywheel

⇒ “2.1 Summary of components (Octavia II, Superb II)”, page 74

⇒ “2.2 Summary of components - (Fabia II, Roomster)”, page 76

⇒ “2.3 Replacing crankshaft sealing ring on belt pulley side (Octavia II, Superb II)”, page 77

⇒ “2.4 Replacing crankshaft sealing ring on belt pulley side (Fabia II, Roomster)”, page 79

⇒ “2.5 Removing and installing the sealing flange on the belt pulley side”, page 81

⇒ “2.6 Removing and installing sealing flange on gearbox side (Octavia II, Superb II)”, page 83

⇒ “2.7 Removing and installing two-mass flywheel (Octavia II, Superb II)”, page 90

2.1 Summary of components (Octavia II, Superb II)

1 - Sealing ring

- Replace.
⇒ “2.3 Replacing crankshaft sealing ring on belt pulley side (Octavia II, Superb II)”, page 77 .

2 - Sealing flange on the belt pulley side

- must be positioned on dowel sleeves
- removing and installing
⇒ “2.5 Removing and installing the sealing flange on the belt pulley side”, page 81

3 - Cylinder block

- with fitted crankshaft

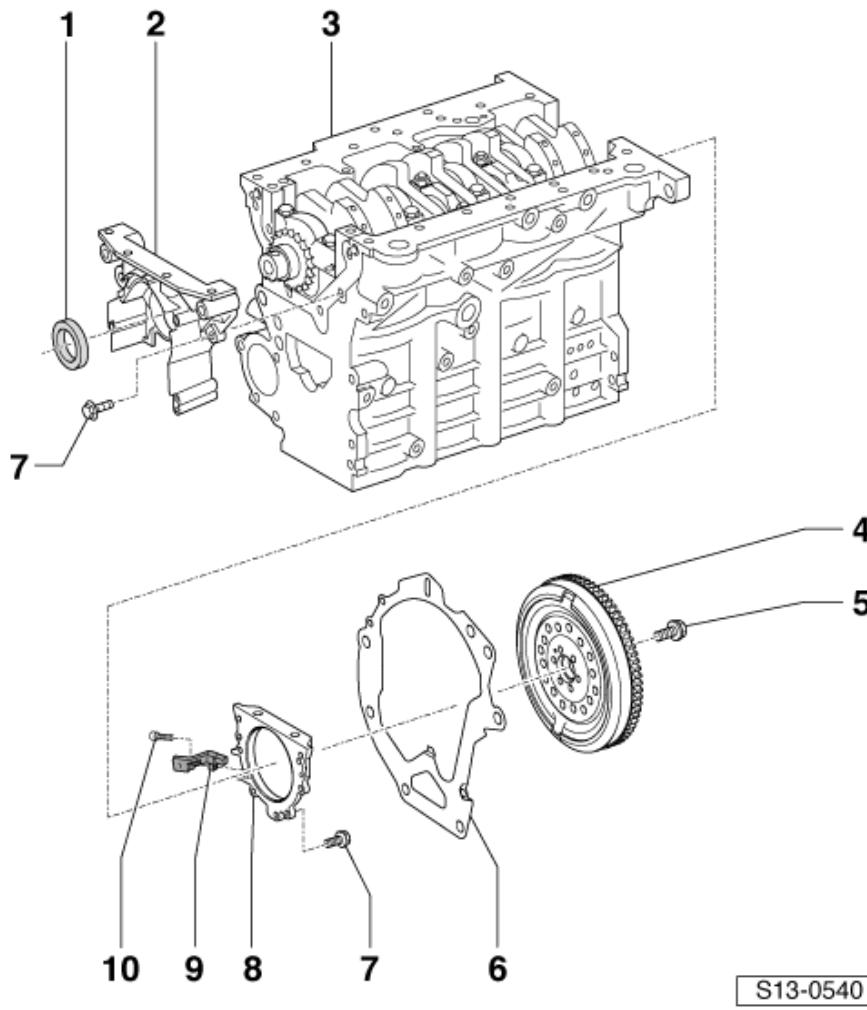
4 - The two-mass flywheel

- removing and installing
⇒ “2.7 Removing and installing two-mass flywheel (Octavia II, Superb II)”, page 90
- Assembly is only possible in one position through offset holes.
- Inspect proper operation ⇒ Vehicle diagnostic tester

5 - Screw

- Replace after disassembly
- 60 Nm + 90°

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S13-0540



6 - Intermediate plate

- must be positioned on dowel sleeves
- do not damage/bend during assembly work
- inserted on sealing flange ⇒ Fig. "Installing intermediate plate", page 75

7 - Screw

- Replace after disassembly
- 15 Nm

8 - Sealing flange on the gearbox side

- Always replace complete with gasket ring and if possible with rotor of engine speed sender -G28-
- Replace.
⇒ "2.6 Removing and installing sealing flange on gearbox side (Octavia II, Superb II)", page 83 .

9 - Engine speed sender - G28-

- removing and installing
⇒ "1.10 Removing and installing engine speed sender G28 (Octavia II, Superb II)", page 373

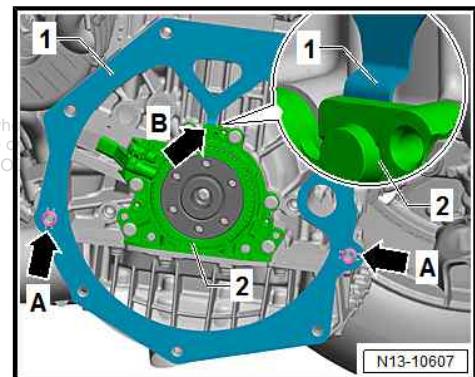
10 - Screw

- 5 Nm

Installing intermediate plate

- Mount intermediate plate -1- on sealing flange -2- and push onto the dowel sleeves arrows -A-.

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2.2 Summary of components - (Fabia II, Roomster)

1 - Sealing ring

- Replace.
[⇒ "2.4 Replacing crank-shaft sealing ring on belt pulley side \(Fabia II, Roomster\)", page 79 .](#)

2 - Sealing flange on the belt pulley side

- must be positioned on dowel sleeves
- removing and installing
[⇒ "2.5 Removing and installing the sealing flange on the belt pulley side", page 81](#)

3 - Cylinder block

- removing and installing crankshaft
[⇒ "3.3 Summary of components - Removing and installing crankshaft \(Fabia II, Roomster\)", page 95](#)

4 - Flywheel

- Assembly only possible in one position - holes offset
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- for removing and installing, lock with - MP1-504-
[⇒ Fig. "Lock the fly-wheel" , page 77](#)

5 - Screw

- Replace after disassembly
- 60 Nm + 90°

6 - Intermediate plate

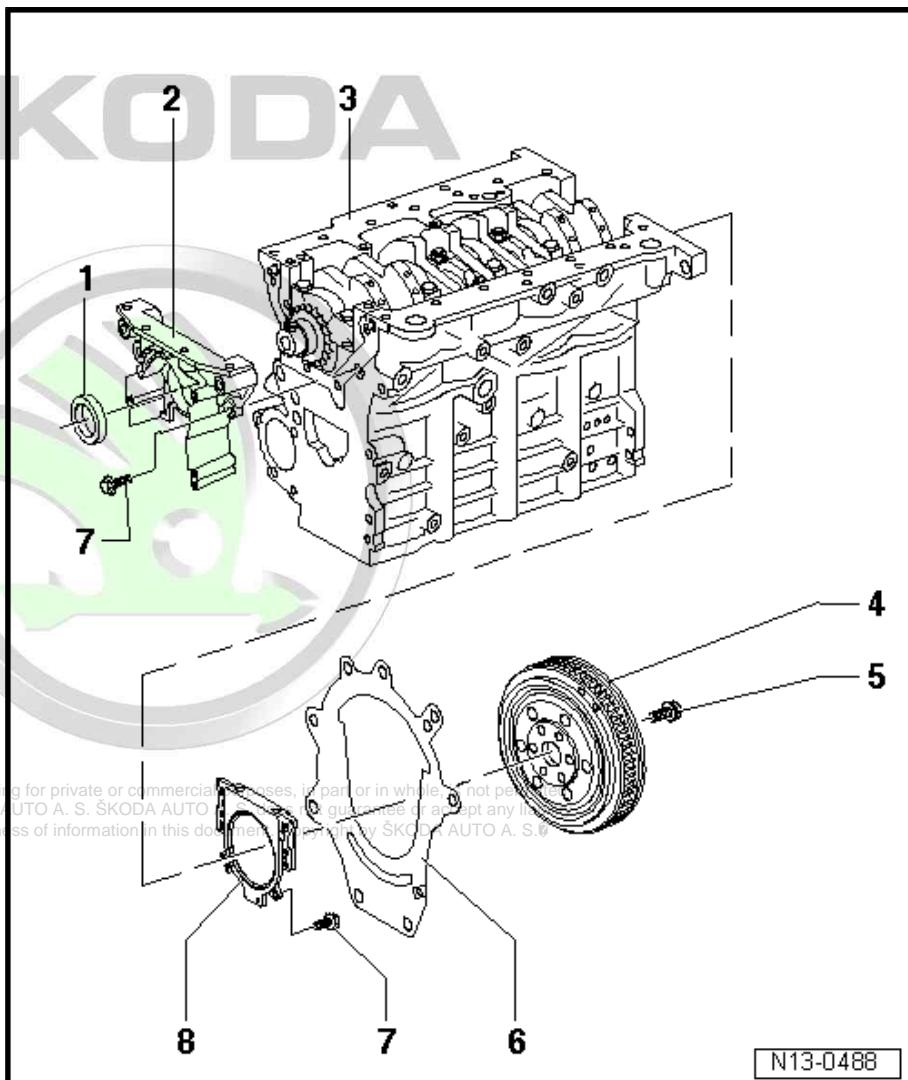
- must be positioned on dowel sleeves
- do not damage/bend during assembly work
- hang on the sealing flange [⇒ Fig. "Installing intermediate plate" , page 77](#)

7 - Screw

- 15 Nm

8 - Sealing flange on the gearbox side

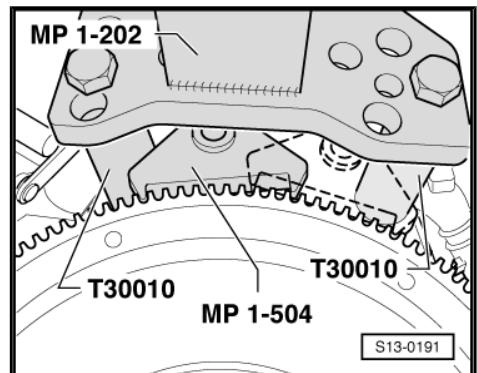
- to remove and install, take off oil pan
[⇒ "1.5 Removing and installing oil pan \(Fabia II, Roomster\)", page 180](#)
- must be replaced completely
- install gasket ring dry, the crankshaft stub must be free of grease
- install new sealing flange with guide sleeve (do not pull guide sleeve off the ring seal before installing)



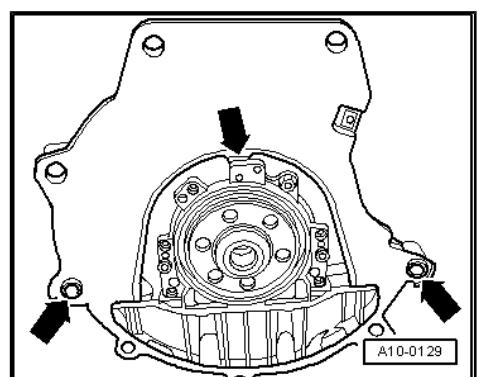


Lock the flywheel

- Position the flywheel lock -MP1-504- on the starter ring gear and turn crankshaft until it rests against the distance sleeve - T30010- .



Installing intermediate plate



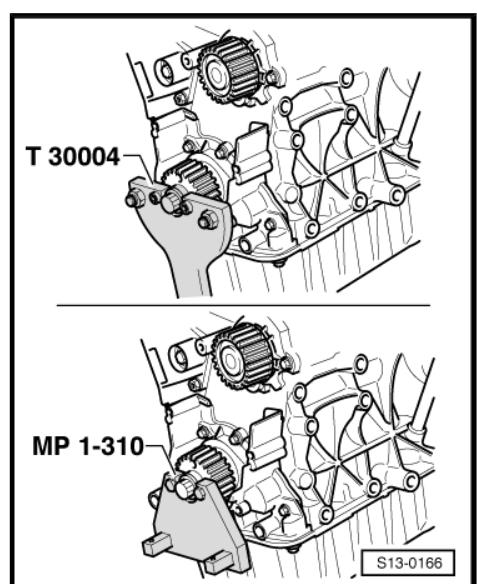
2.3 Replacing crankshaft sealing ring on belt pulley side (Octavia II, Superb II)

Special tools and workshop equipment required

- Counterholder - T30004 (3415)- or Counterholer - MP1-310 (3099)-
- Gasket ring extractor - MP1-226 (3203)-
- Assembly device - T10053-

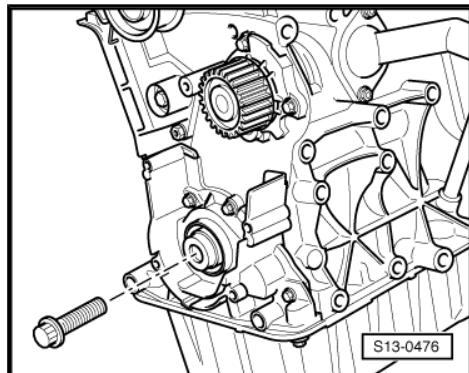
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- Engine installed.
- Remove toothed belt ["1.6.1 Removing", page 46](#) .
- Remove crankshaft toothed belt sprocket, to this end lock toothed belt sprocket with counterholder or counterholder for toothed belt sprocket.





- Before positioning the gasket ring extractor, screw the central bolt of the toothed belt sprocket into the crankshaft by hand up to the stop.
- Unscrew inner part of the gasket ring extractor -MP1-226 (3203)- two turns (approx. 3 mm) out of the outer part and lock with knurled screw.



- Oil the thread head of the gasket ring extractor, position and forcibly screw into the gasket ring as far as possible.
- Release knurled screw and turn the inner side against the crankshaft until the gasket ring is pulled out.
- Clamp gasket ring extractor into the vice and remove gasket ring with pliers.
- Clean the contact and sealing surfaces.

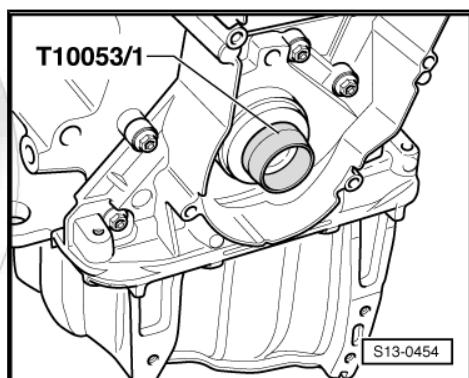
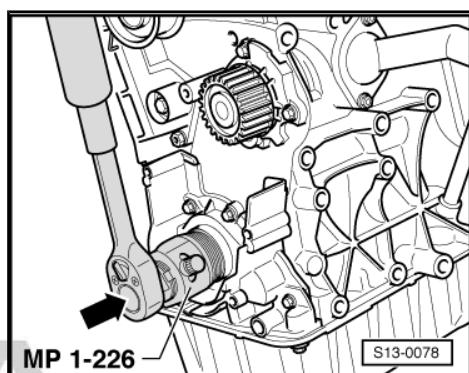
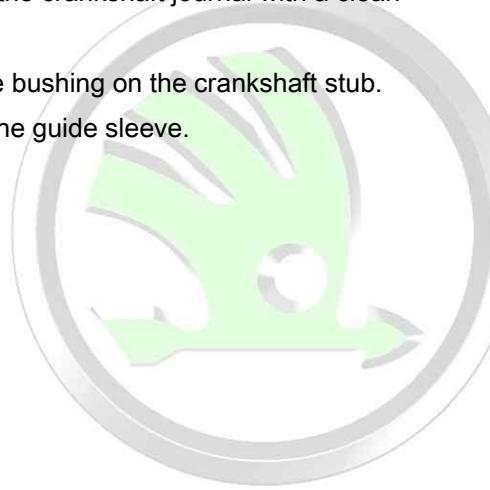
Install



Note

Do not oil the sealing lip and the outer surface of the gasket ring before the pressing procedure.

- Remove oil residue on the crankshaft journal with a clean cloth.
- Install -T10053/1- guide bushing on the crankshaft stub.
- Slide gasket ring over the guide sleeve.



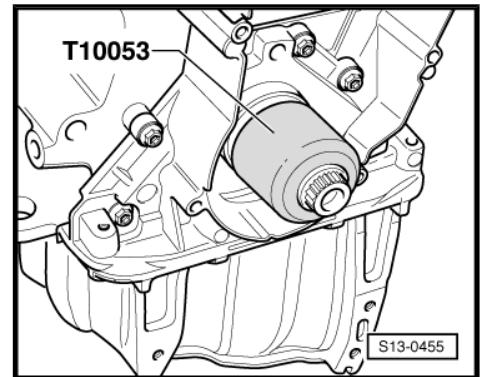
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- Press in the gasket ring flush with the central screw for toothed belt sprocket and with pressure bushing of -T10053- .

Note

- ◆ There must not be any oil present on contact surface between toothed belt sprocket and crankshaft.
- ◆ Replace central bolt for toothed belt sprocket.
- ◆ Do no oil central screw for toothed belt sprocket.



- Install crankshaft toothed belt sprocket, to this end lock toothed belt sprocket with counterholder or counterholder for toothed belt sprocket.
- install (set the timing)
⇒ “1.6.2 Installing (set the timing)”, page 50 .
- Install the V-ribbed belt
⇒ “1.2 Removing and installing V-ribbed belt (Octavia II, Superb II)”, page 36 .

2.4 Replacing crankshaft sealing ring on belt pulley side (Fabia II, Roomster)

Special tools and workshop equipment required

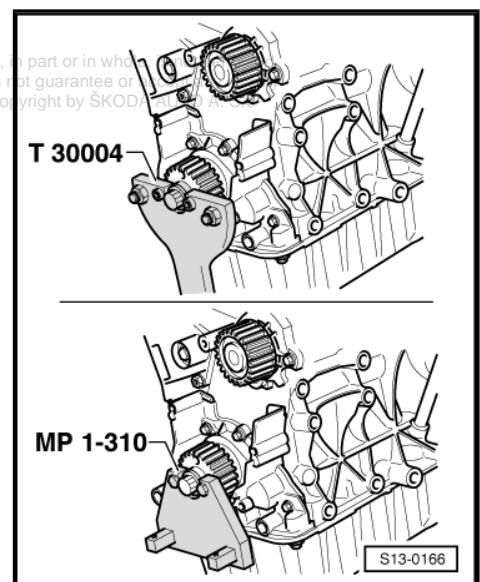
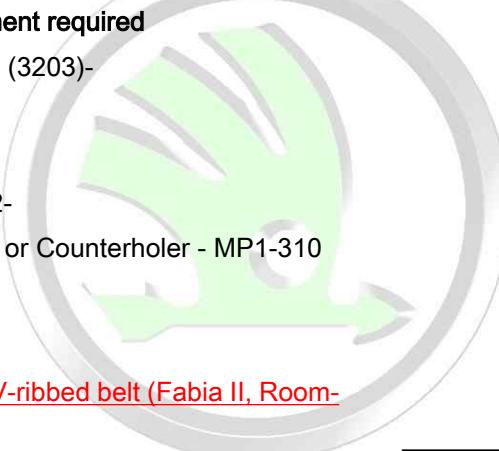
- ◆ Gasket ring extractor - MP1-226 (3203)-
- ◆ Assembly device - T10053-
- ◆ Bushing - T10053/1-
- ◆ Bolt (M16 x 1.5 x 60) - T10053/2-
- ◆ Counterholder - T30004 (3415)- or Counterholer - MP1-310 (3099)-

Removing

- Remove toothed belt
⇒ “1.4 Removing and installing V-ribbed belt (Fabia II, Roomster)”, page 41 .
- Remove crankshaft - toothed belt sprocket. Lock timing belt sprocket with counterholder - T30004- or counterholder - MP1-310 (3099)- .

Note

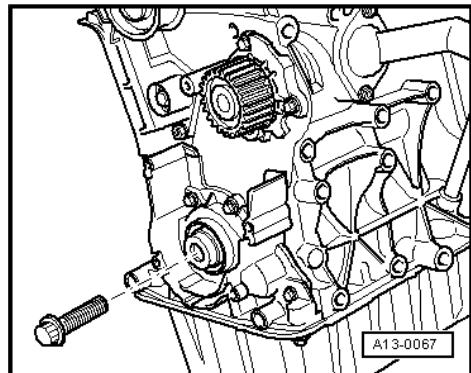
When installing the counterholder - MP1-310 (3099)- place 2 washers between the toothed belt gear and the counterholder .





- Screw the bolt by hand into the crankshaft as far as the stop.
- Unscrew inner part of the gasket ring extractor - MP1-226 (3203)- nine turns (approx. 17 mm) out of the outer part and lock with knurled screw.

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- Oil the thread head of the gasket ring extractor - MP1-226 (3203)-, position and forcefully screw it into the gasket ring as far as possible.
- Release knurled screw and turn the inner side against the crankshaft until the gasket ring is pulled out.

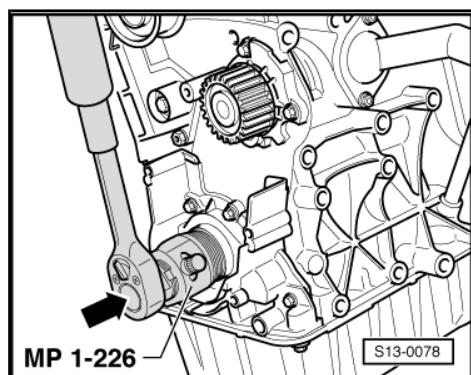
Install



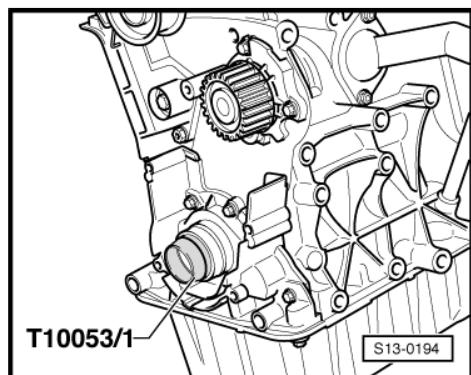
Note

- ◆ Only fit PTFE gasket rings. Do not use any elastomer gasket rings with garter spring.
- ◆ The sealing lips of the PTFE gasket ring must neither be oiled nor greased.

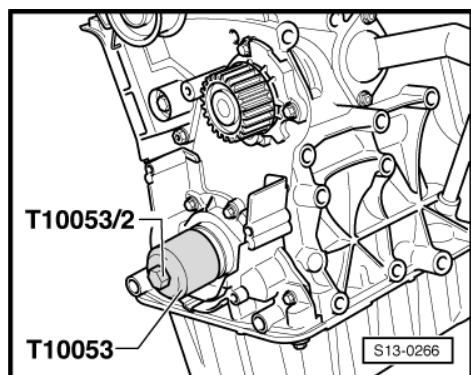
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- Remove oil residue on the crankshaft journal with a clean cloth.
- Insert bushing - T10053/1- on the crankshaft stub.
- Slide gasket ring over the bushing onto the crankshaft stub.



- Press in the gasket ring with assembly device - T10053- and screw - T10053/2- up to the stop.

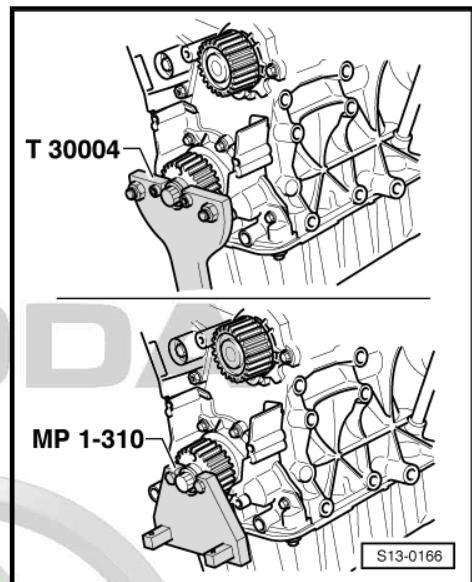




- Install crankshaft - toothed belt sprocket and lock with counterholder - T30004- or counterholder - MP1-310 (3099)- .

Note

- ◆ When installing the counterholder - MP1-310 (3099)- place 2 washers between the toothed belt gear and the counterholder.
- ◆ Replace central screw for crankshaft toothed belt sprocket.
- Tighten new central screw for crankshaft toothed belt sprocket to 120 Nm and torque a further 90°.
- Install toothed belt
 ⇒ “[1.4 Removing and installing V-ribbed belt \(Fabia II, Roomster\)](#)”, page 41 .



2.5 Removing and installing the sealing flange on the belt pulley side

Special tools and workshop equipment required

- ◆ Counterholder - T30004 (3415)- or Counterholer - MP1-310 (3099)-
- ◆ Assembly device - T10053-
- ◆ Sealant remover gasket stripper (bearing code GST, bearing article no. R 34402), manufacturer Retech s.r.o.
- ◆ Cleaning and degreasing agent , e.g. -D 009 401 04-
- ◆ Protective goggles and gloves
- ◆ Silicone sealant ⇒ [Electronic catalogue of original parts \(ETKA\)](#)

Removing

- Engine installed.
- Removing the toothed belt:
 - ◆ [Fabia II, Roomster ⇒ “1.10.1 Removing”, page 67](#) .
 - ◆ [Superb II ⇒ “1.6.1 Removing”, page 46](#) .
 - ◆ [Octavia II ⇒ “1.8.1 Removing”, page 57](#) .



- Remove crankshaft toothed belt sprocket, to this end lock toothed belt sprocket with counterholder or counterholder for toothed belt sprocket.
- Drain engine oil:
 - ◆ ⇒ Maintenance ; Booklet Fabia II.
 - ◆ ⇒ Maintenance ; Booklet Roomster.
 - ◆ ⇒ Maintenance ; Booklet Octavia II.
 - ◆ ⇒ Maintenance ; Booklet Superb II.
- Removing the oil pan:
 - ◆ Fabia II, Roomster
⇒ [“1.5 Removing and installing oil pan \(Fabia II, Roomster\)”, page 180](#).
 - ◆ Octavia II, Superb II
⇒ [“1.4 Removing and installing oil pan \(Octavia II, Superb II\)”, page 178](#).
- Unscrew the fixing screws of the sealing flange and remove sealing flange, if necessary release by applying slight blows with a rubber-headed hammer.

Install

Install in the reverse order of removal. When doing this, note the following:



WARNING

Wear protective gloves when working with sealant and grease remover!

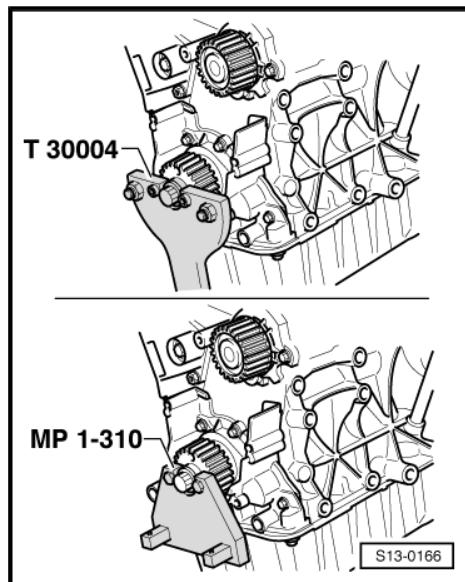
- Clear sealing surface on sealing flange, cylinder block and on the oil pan from gasket residues with chemical sealant remover.
- Degrease the sealing surfaces.



Note

Pay attention to the use by date on the silicone sealant.

- Cut off nozzle tube at the front marking (diameter of nozzle approx. 3 mm).



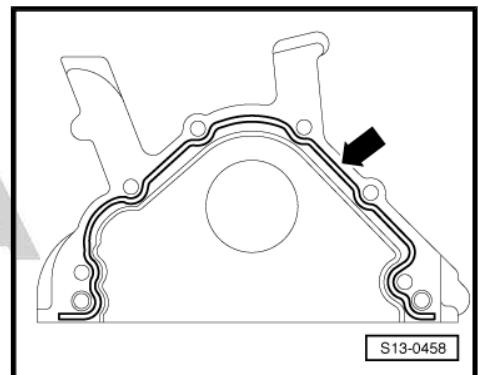
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- Apply silicone sealant bead -arrow- to the clean sealing surface of the sealing flange, as shown.
- Thickness of sealant bead -arrow-: 2...3 mm.

Note

- ◆ *The sealant bead must not be thicker than 3 mm otherwise excess sealant may get into the oil pan and clog the strainer in the oil suction pipe.*
- ◆ *The sealing flange must be installed within 5 minutes after applying the silicone sealant.*
- ◆ *When installing the sealing flange with the gasket ring fitted, place a guide sleeve -T10053/1- on the crankshaft journal.*



- Carefully push the sealing flange onto the dowel sleeves at the cylinder block and tighten new fixing bolts by hand.
- Tighten the screws of the sealing flange alternately and cross-wise.
- Installing the oil pan:
 - ◆ Fabia II, Roomster
⇒ [“1.5 Removing and installing oil pan \(Fabia II, Roomster\)”, page 180](#).
 - ◆ Octavia II, Superb II
⇒ [“1.4 Removing and installing oil pan \(Octavia II, Superb II\)”, page 178](#).
- Install crankshaft toothed belt sprocket, to this end lock toothed belt sprocket with counterholder or counterholder for toothed belt sprocket. in whole, is not permitted to guarantee or accept any liability with respect to the correctness of information in this document. Copyright by ŠKODA AUTO A. S.
- Installing the timing belt:
 - ◆ Superb II ⇒ [“1.6.2 Installing \(set the timing\)”, page 50](#) .
 - ◆ Octavia II ⇒ [“1.8.2 Installing \(set the timing\)”, page 60](#) .
 - ◆ Fabia II, Roomster ⇒ [“1.10.2 Install”, page 70](#) .
- Install the V-ribbed belt:
 - ◆ Fabia II, Roomster
⇒ [“1.4 Removing and installing V-ribbed belt \(Fabia II, Roomster\)”, page 41](#) .
 - ◆ Superb II, Octavia II
⇒ [“1.2 Removing and installing V-ribbed belt \(Octavia II, Superb II\)”, page 36](#) .
- Top up with engine oil and check the oil level:
⇒ Maintenance ; Booklet Fabia II.
⇒ Maintenance ; Booklet Roomster.
⇒ Maintenance ; Booklet Octavia II.
⇒ Maintenance ; Booklet Superb II.

2.6 Removing and installing sealing flange on gearbox side (Octavia II, Superb II)

Special tools and workshop equipment required

- ◆ Assembly tool - T10134-
- ◆ Feeler gauges



- ◆ Steel straightedge
- ◆ Screw M6 x 35 (3x)
- ◆ Screw M7 x 35 (2x)

Removing

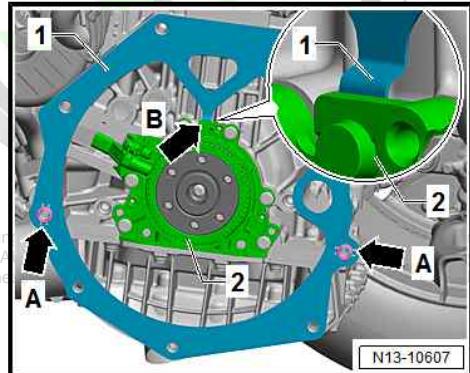
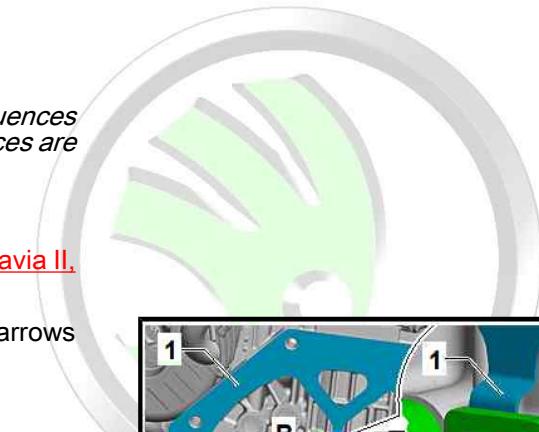


Note

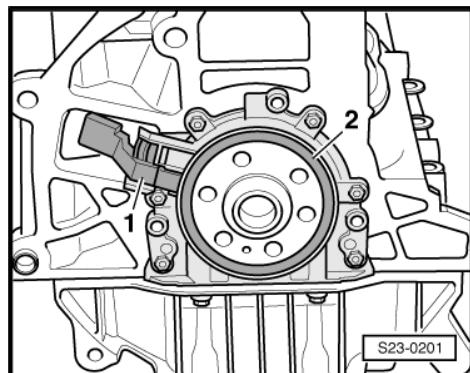
In order to better represent the work sequences, these sequences are performed with the engine removed. The work sequences are identical with the engine installed and gearbox removed.

- Remove the two-mass flywheel
[⇒ “2.7 Removing and installing two-mass flywheel \(Octavia II, Superb II\)”, page 90](#).
- Remove intermediate plate -1- from the dowel sleeves arrows -A- and detach from sealing flange -arrow B-.
- Position engine at TDC for cylinder 1:
- ◆ Octavia II
[⇒ “1.7 Summary of components - toothed belt \(Octavia II\)”, page 53](#).
- ◆ Superb II
[⇒ “1.5 Summary of components - toothed belt \(Superb II\)”, page 43](#).

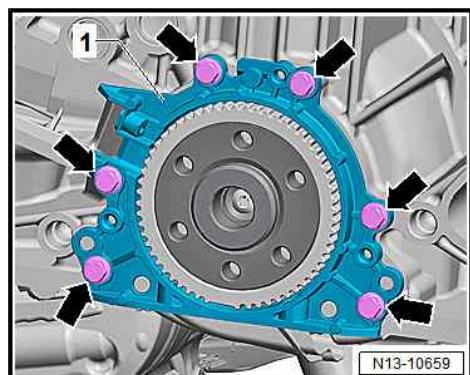
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- Remove engine speed sender -G28- Pos. -1-.
- Removing the oil pan
[⇒ “1.4 Removing and installing oil pan \(Octavia II, Superb II\)”, page 178](#).

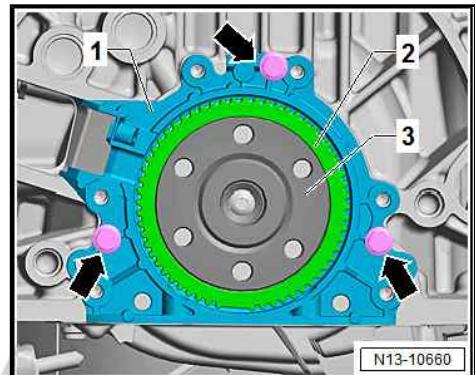


- Unscrew fixing screws -arrows- of the sealing flange -1-.





- Alternately screw in 3 screws M6x35 -arrows- (max. $\frac{1}{2}$ turn (180°) per screw) into the threaded holes of the sealing flange -1- and remove the sealing flange together with the sender wheel -2- from the crankshaft -3-.

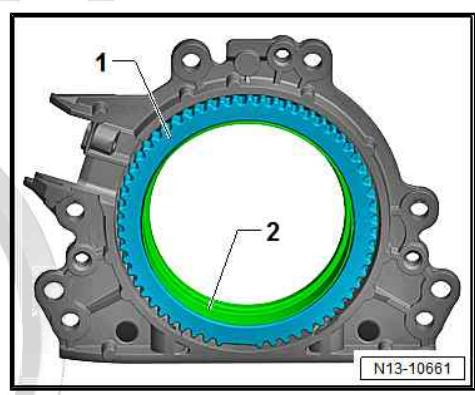


Install



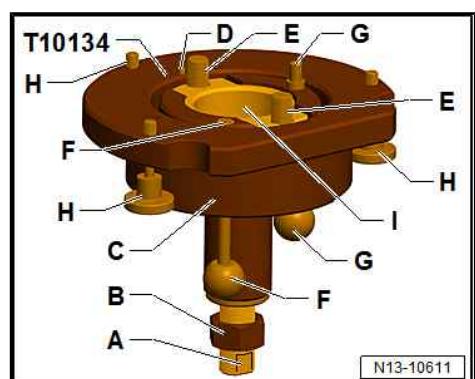
Note

- ◆ The sealing flange with PTFE gasket ring is provided with sealing lip supporting ring -2-. This supporting ring is intended as an assembly sleeve and must not be removed before installing.
- ◆ Do not separate or turn the sealing flange and rotor -1- after removing them from the spare part package.
- ◆ The rotor is given its fitting location by fixing the assembly tool - T10134- to the positioning pin.
- ◆ The sealing flange and gasket ring form one unit and must be replaced together with the rotor.
- ◆ The rotor has an elastomer layer on its sealing surface with the crankshaft. This layer must not be brought into contact with dirt or grease.
- ◆ The assembly tool - T10134- is given its fitting location to the crankshaft by means of a guide bolt, which is guided into the threaded bore of the crankshaft.



Assembly tool - T10134-

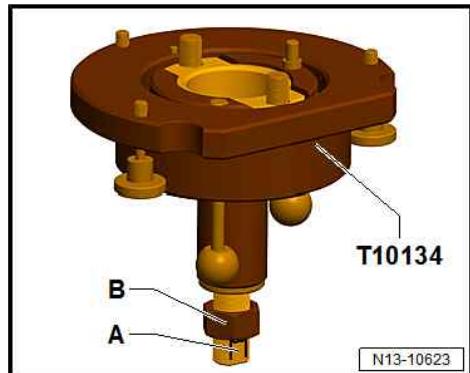
- A - Clamping surface
- B - Hexagon nut
- C - Assembly cup
- D - Positioning pin
- E - Allan screws (2 pieces)
- F - Guide bolts for petrol engines
- G - Guide bolts for diesel engines
- H - Knurled screws (3 pieces)
- I - Inner part



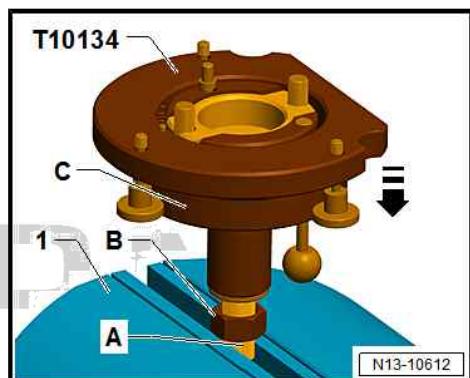


Mounting sealing ring with sender wheel on assembly tool - T10134-

- Untwist nut -B- until just before it touches the clamping surface -A- of the threaded spindle.



- Clamp assembly tool - T10134- on clamping surface -A- of the threaded spindle in a vice -1-.
- Press assembly housing -C- downwards in -direction of arrow- until it lies on nut -B-.
- Screw nut onto threaded spindle until inner part of assembly tool and assembly housing are at same height.

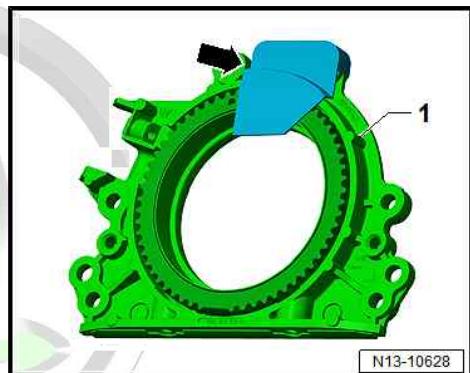


- Remove the securing clip -arrow- from the new sealing flange.



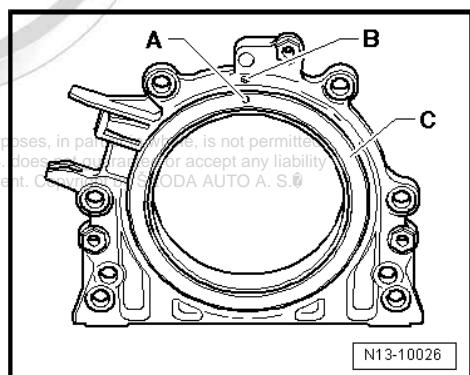
Note

Do not remove or turn the rotor from the sealing flange.



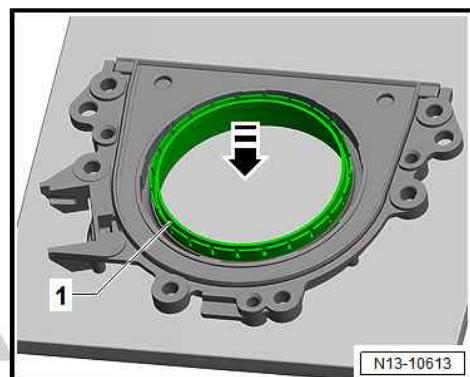
- Locating hole -A- on sender wheel -C- must align with marking -B- on sealing flange.

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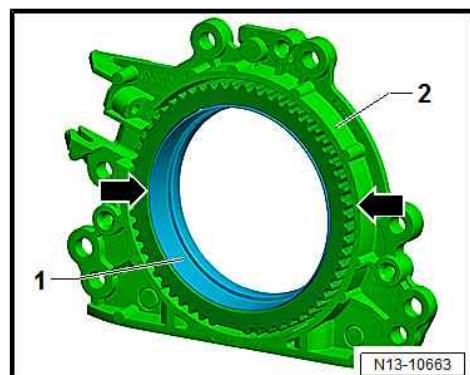
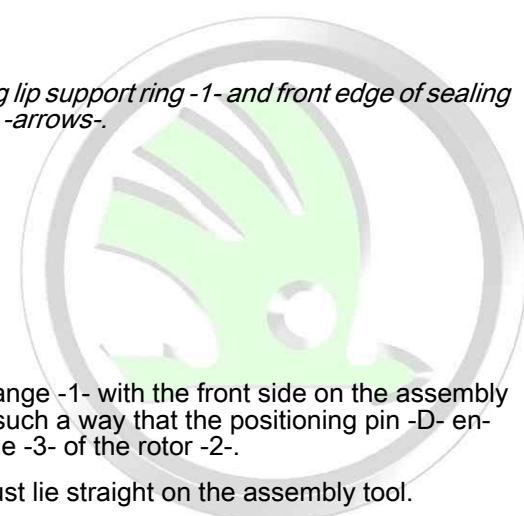




- Lay the front side of the sealing flange on a clean and level surface.
- Press down sealing lips supporting ring -1- in -direction of the arrow-, until it rests on the level surface.

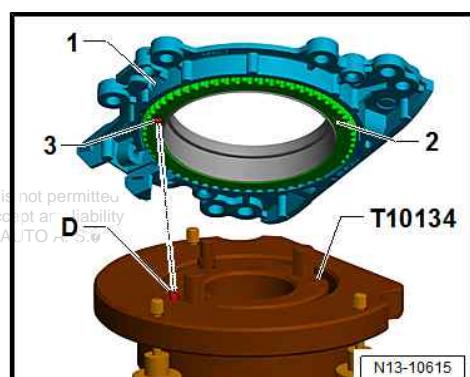


Upper edge of sealing lip support ring -1- and front edge of sealing flange -2- must align -arrows-.



- Lay the sealing flange -1- with the front side on the assembly tool - T10134- in such a way that the positioning pin -D- engages into the hole -3- of the rotor -2-.
- Sealing flange must lie straight on the assembly tool.

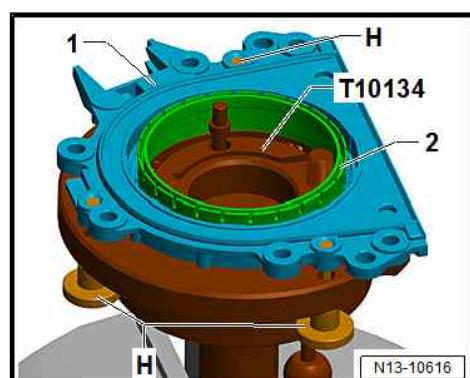
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- Press on the sealing flange -1- and sealing lip supporting ring -2- by tightening the 3 knurled screws -H- onto the surface of the assembly tool - T10134- .



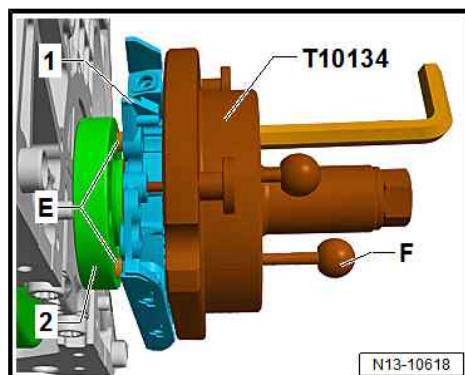
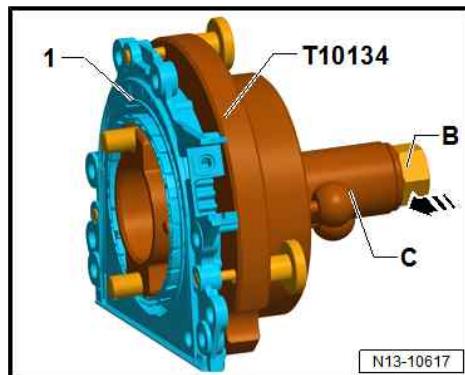
- ◆ *This prevents locating pin from slipping out of sender wheel hole.*
- ◆ *When installing sealing flange, ensure that sender wheel remains fixed in assembly tool.*



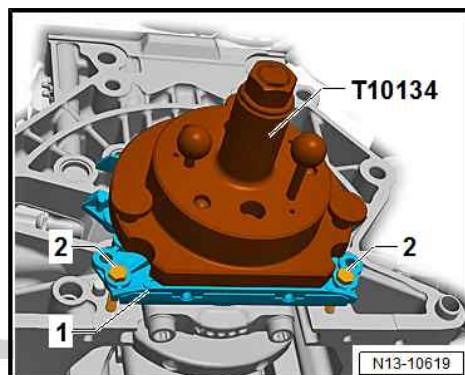


Attach assembly tool - T10134- with sealing flange to the crank-shaft flange and cylinder block

- The crankshaft flange must be free of grease and oil.
- Crankshaft is at TDC for cylinder 1.
- Screw nut -B- on until it reaches end of threaded spindle.
- Press the threaded spindle on the assembly tool - T10134- in -direction of arrow- until the nuts -B- rest against the assembly cup -C-.
- Align flat side of assembly housing to the cylinder block sealing surface on the oil sump side.
- Secure the assembly tool - T10134- together with the sealing flange -1- with approx. five threads of the Allan screws -E- to the crankshaft flange.



- Screw in two screws M7 x 35 mm -2- by about 3 thread turns into the cylinder block to guide the sealing flange -1-.



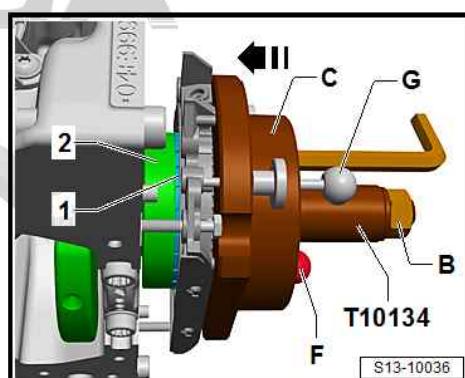
Secure assembly tool - T10134- to crankshaft flange

- Push the assembly cup -C- by hand in the -direction of the arrow- until the sealing lip supporting ring -1- rests on the crankshaft flange -2-.
- Push guide pin for diesel engines -G- into the hole in the crankshaft. This gives the rotor its final fitting location.



Note

The guide pin for petrol engines -F- must not be inserted in threaded hole of crankshaft.

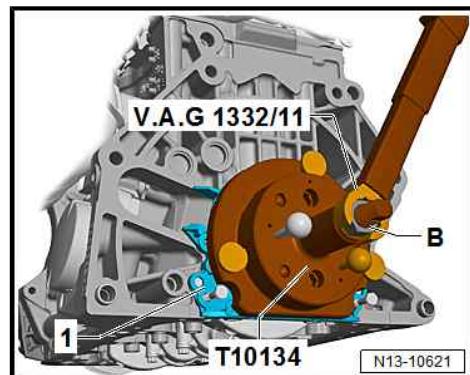


- Tighten the two hexagon socket head bolts hand-tight.
- Screw nut -B- onto threaded spindle by hand until it lies against assembly housing -C-.



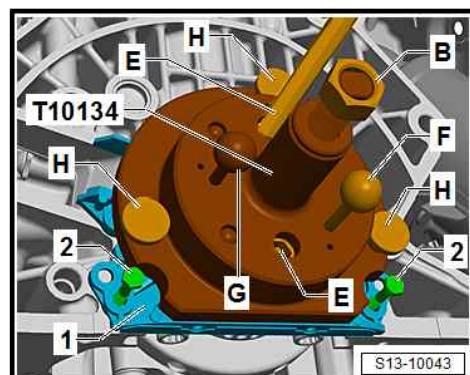
Press sender wheel onto crankshaft flange using assembly tool - T10134-

- Tighten nuts -B- on the assembly tool - T10134- with torque wrench to 35 Nm.
- After nut is tightened to 35 Nm, a small air gap must still be present between cylinder block and sealing flange -1-.



Checking sender wheel installation position on crankshaft

- Screw nut -B- on until it reaches end of threaded spindle.
- Unscrew bolts-2- from the intake manifold.
- Unscrew knurled screws -H- from the sealing flange -1-.
- Unscrew Allan screws -E- from the crankshaft flange.
- Remove assembly tool - T10134- .
- Remove sealing lip supporting ring.
- Place caliper gauge on crankshaft flange.



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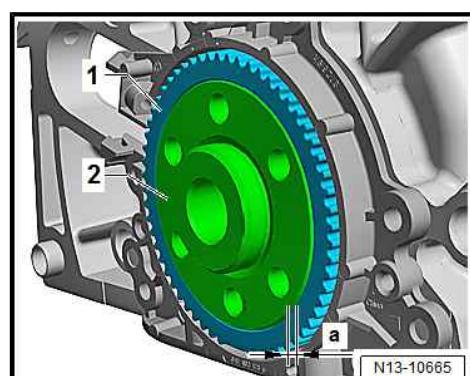
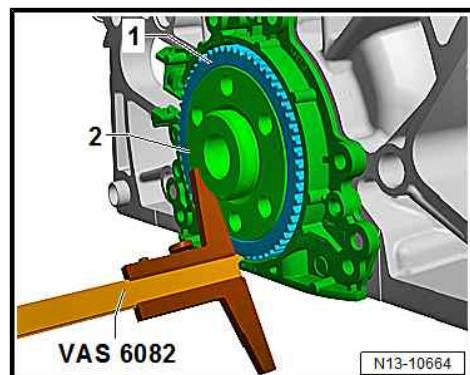
- Measure distance -a- between crankshaft flange -2- and sensor rotor -1-.

Specified value: Dimension -a- = 0.5 mm.

If dimension -a- is too small, press sender wheel down
[⇒ page 90](#).

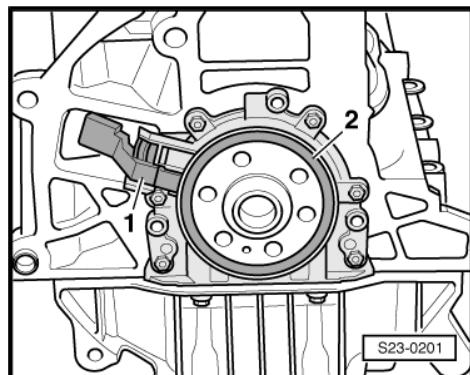
If the specified value is reached:

- Tighten the new fixing screws of the sealing alternately cross-wise.





- Install engine speed sender - G28- Position -1-.
- Installing the oil pan
 ⇒ [“1.4 Removing and installing oil pan \(Octavia II, Superb II\)”, page 178](#) .
- Installing intermediate plate.
- Install flywheel with new screws.



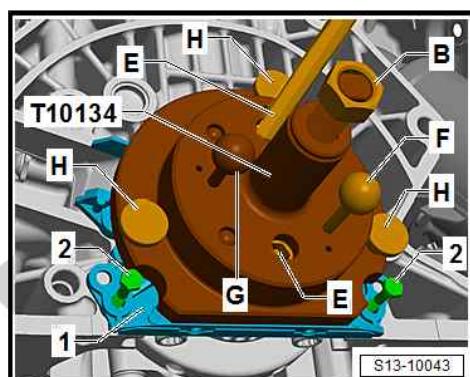
Re-pressing sender wheel

- Secure assembly tool - T10134- to crankshaft flange with hexagon socket head bolts -E-.



Note

Make sure the positioning pin on the assembly tool - T10134- engages in the bore of the sensor rotor.



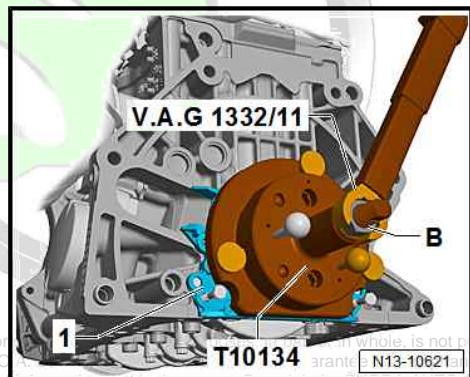
- Push guide pin for diesel engines -G- into the hole in the crankshaft up to the stop. If the guide bolt is correctly positioned, then the handle has a distance of approx. 10 mm from the assembly housing.
- Tighten the two hexagon socket head bolts -E- hand-tight.
- Screw the knurled screws -H- into the sealing flange -1-.
- Screw nut -B- onto threaded spindle by hand until it lies against the assembly housing.
- Tighten nut -B- of the assembly tool - T10134- to 40 Nm.
- Again inspect the fitting position of the rotor on the crankshaft
 ⇒ [page 89](#) .

If the dimension -a- is too small again:

- Tighten the hexagon nut of the assembly tool to 45 Nm.
- Again inspect the fitting position of the rotor on the crankshaft
 ⇒ [page 89](#) .

Tightening torques

- ◆ Screws for sealing flange on gearbox side
 ⇒ [“2.1 Summary of components \(Octavia II, Superb II\)”, page 74](#) .
- ◆ Screw for engine speed sender - G28-
 ⇒ [“2.1 Summary of components \(Octavia II, Superb II\)”, page 74](#) .
- ◆ Screws for flywheel
 ⇒ [“2.1 Summary of components \(Octavia II, Superb II\)”, page 74](#) .



2.7 Removing and installing two-mass flywheel (Octavia II, Superb II)

Special tools and workshop equipment required

- ◆ Counterholder - MP1-223 (3067)-



or

- ◆ Engine mount - MP1-202 (VW 540)-
- ◆ Bushing - T30010 (VW 540/1B)-
- ◆ Flywheel lock - MP1-504-

Removing

- Gearbox is removed.

Engine installed

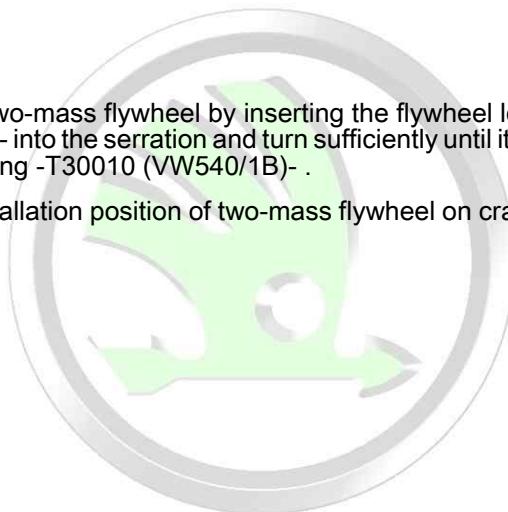
- Insert the counterholder - MP1-223 (3067)- into the bore hole on the cylinder block.
- Fitting position of the counterholder:

A - for tightening

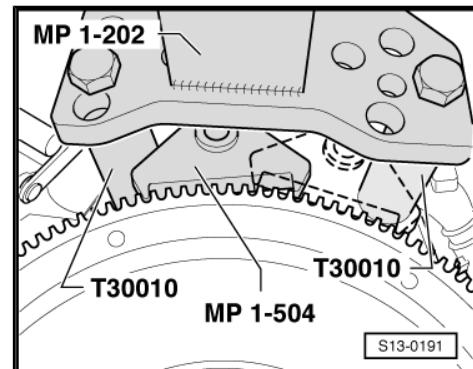
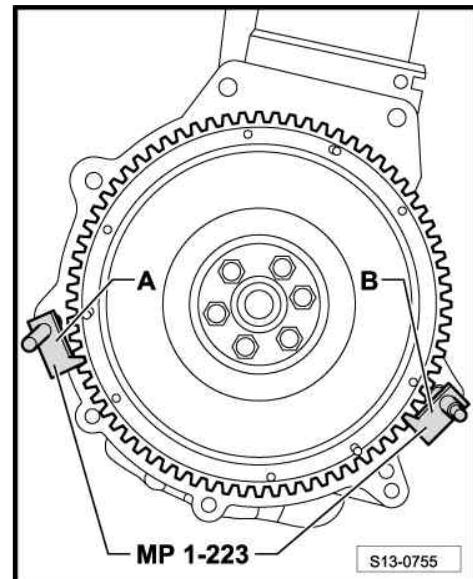
B - for slackening

Engine removed

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- Secure two-mass flywheel by inserting the flywheel lock - MP1-504- into the serration and turn sufficiently until it touches the bushing -T30010 (VW540/1B)- .
- Mark installation position of two-mass flywheel on crankshaft.



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Note

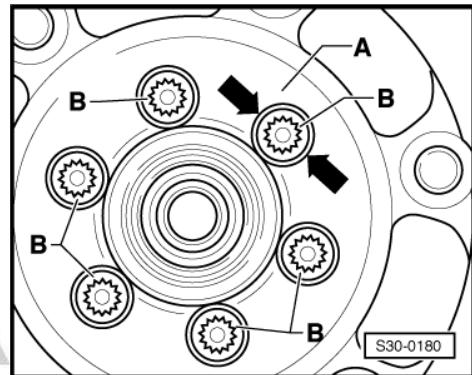
When removing, ensure that no screw head touches the two-mass flywheel, otherwise the flywheel may be damaged at the following turning of the screw.

- Rotate the secondary side -A- of the two-mass flywheel in such a way that the screws -B- are positioned in the middle of the holes -arrows-.



Caution

When unscrewing the screws -B-, ensure that no screw head catches on the secondary side -A- of the two-mass flywheel, otherwise the flywheel will be damaged.



- Release screws -B- and remove two-mass flywheel.

Install

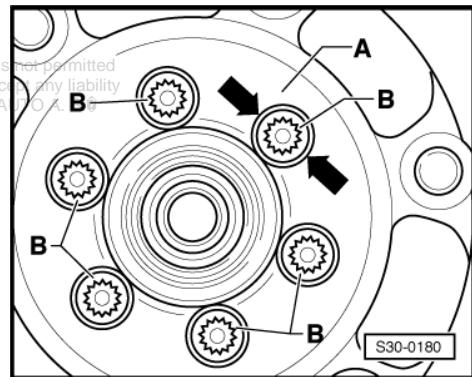
Install in the reverse order of removal. When doing this, note the following:

Note

- ◆ Use new screws for attaching.
- ◆ Install the flywheel in the location marked when removing.

- Rotate the secondary side -A- of the two-mass flywheel in such a way that the screws -B- are positioned in the middle of the holes -arrows-

1. Screw in all the screws -B- by hand.
2. First of all tighten all the screws -B- crosswise to 60 Nm.
3. Turn all screws -B- a further 90° crosswise.





3 Crankshaft, Piston and Conrod

⇒ “3.1 Summary of components - Removing and installing crank-shaft (Superb II)”, page 93

⇒ “3.2 Summary of components - Removing and installing crank-shaft (Octavia II)”, page 94

⇒ “3.3 Summary of components - Removing and installing crank-shaft (Fabia II, Roomster)”, page 95

⇒ “3.4 Disassembling and assembling pistons and conrods”, page 98

⇒ “3.5 Checking piston projection in TDC”, page 101

⇒ “3.6 Separating new conrod”, page 102

⇒ “3.7 Removing and installing drive chain sprocket”, page 103

3.1 Summary of components - Removing and installing crankshaft (Superb II)

1 - Screw

- Replace after disassembly
- 65 Nm + 90°

2 - Bearing caps

- Bearing cover 1: Belt pulley end
- bearing cap 3 with recesses for thrust washers
- retaining lugs of the bearing shells of the cylinder block/bearing cap must be on top of one another

3 - Bearing shell 3

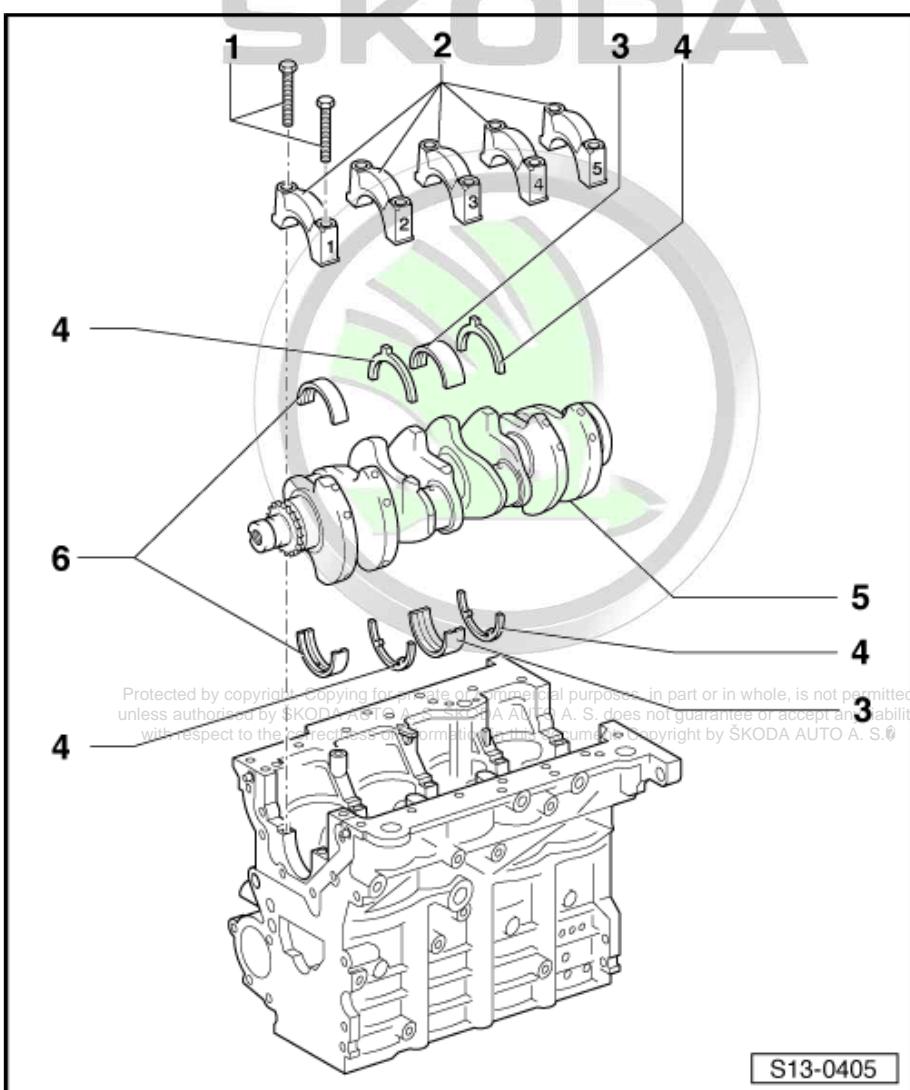
- for cylinder block with lubricating groove
- for bearing cap without lubricating groove
- do not mix up already used bearing shells (mark)

4 - Thrust washers

- for bearing cap 3
- different version for cylinder block and bearing cap
- pay attention to locating element

5 - Crankshaft

- with chain sprocket for oil pump drive
- New axial clearance: 0.07...0.17 mm; wear limit: 0.37 mm
- Crankshaft bearing journals Ø: 54.00 mm
- Rod bearing journals Ø: 47.80 mm



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6 - Bearing shells 1, 2, 4 and 5

- for cylinder block with lubricating groove
- for bearing cap without lubricating groove
- do not mix up already used bearing shells (mark)

3.2 Summary of components - Removing and installing crankshaft (Octavia II)

1 - Bearing shells 1, 2, 4 and 5

- for cylinder block with lubricating groove
- for bearing cap without lubricating groove
- do not mix up already used bearing shells (mark)

2 - Screw

- Replace after disassembly
- 65 Nm + 90°

3 - Bearing caps

- Bearing cover 1: Belt pulley end
- bearing cap 3 with recesses for thrust washers
- retaining lugs of the bearing shells of the cylinder block/bearing cap must be on top of one another

4 - Thrust washers

- for bearing cap 3
- pay attention to locating element

5 - Needle bearing

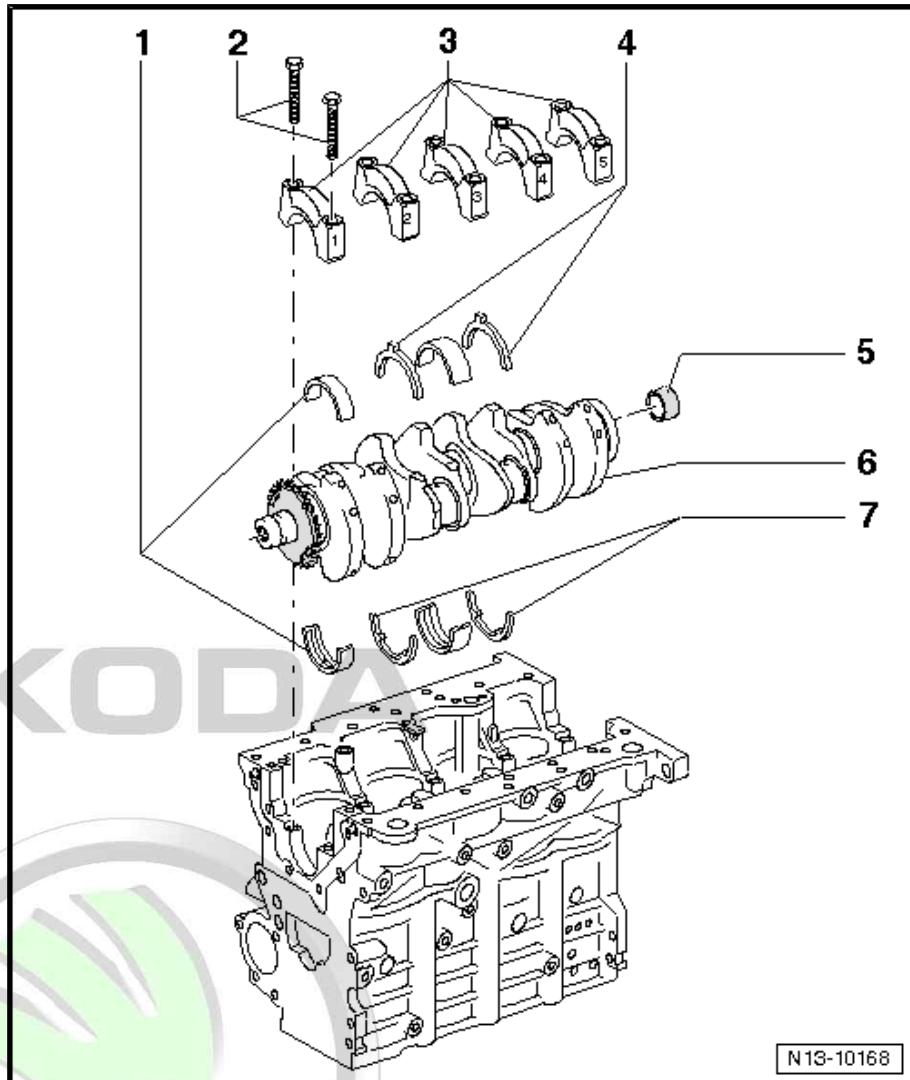
- only vehicles with automatic gearbox
- Replace.
[⇒ "3.2.1 Replacing the needle bearing for crankshaft \(Octavia II, Superb II\)", page 95.](#)

6 - Crankshaft

- with chain sprocket for oil pump drive
- New axial clearance: 0.07...0.17 mm; wear limit: 0.37 mm
- Crankshaft bearing journals Ø 54.00 mm
- Rod bearing journals Ø: 47.80 mm

7 - Thrust washers

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 for cylinder block, bearing 3





3.2.1 Replacing the needle bearing for crankshaft (Octavia II, Superb II)

Only on vehicles fitted with automatic gearbox.

Special tools and workshop equipment required

- ◆ Interior extractor - Kukko 21/2-
- ◆ Countersupport - Kukko 22/1-
- ◆ Centering mandrel - T30029 (3176)-



Note

For installing the engine for vehicles with automatic gearbox, check whether the needle bearing is built into the crankshaft. Install the needle bearing as required

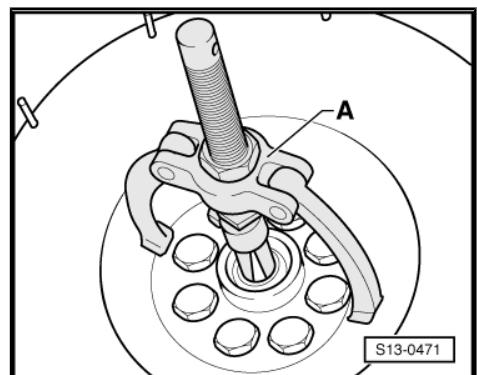
Removing

- Pull out with interior extractor with countersupport -A-, e.g. Kukko 21/2 with Kukko 22/1.

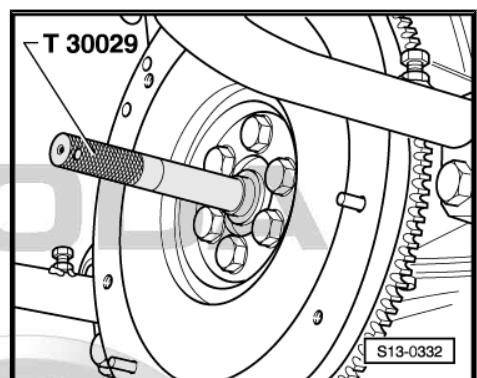
Install

Fitting position of the needle bearing:

- The marked side of the needle bearing (gasket ring side) should be legible when in its installed condition.

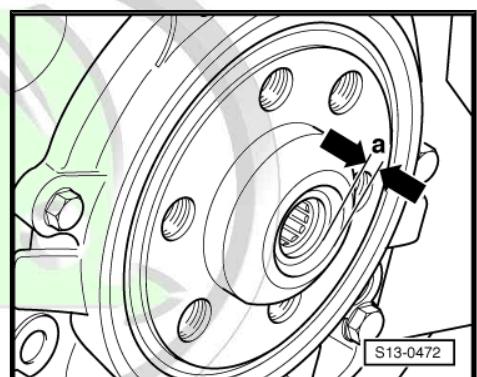


- Insert into the crankshaft with the centering pin -T30029 (3176)- .



Depth of installation of the needle bearing:

- ◆ Dimension -a- = 1.5 mm... 1.8 mm.



3.3 Summary of components - Removing and installing crankshaft (Fabia II, Roomster)

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1 - Bearing shells 1, 2, 4 and 5

- for bearing cap without lubricating groove
- for cylinder block with lubricating groove
- do not mix up used bearing shells (mark)
- Identification
⇒ Fig. "Assign crank-shaft bearing shells to the cylinder block", page 97

2 - Drive chain sprocket

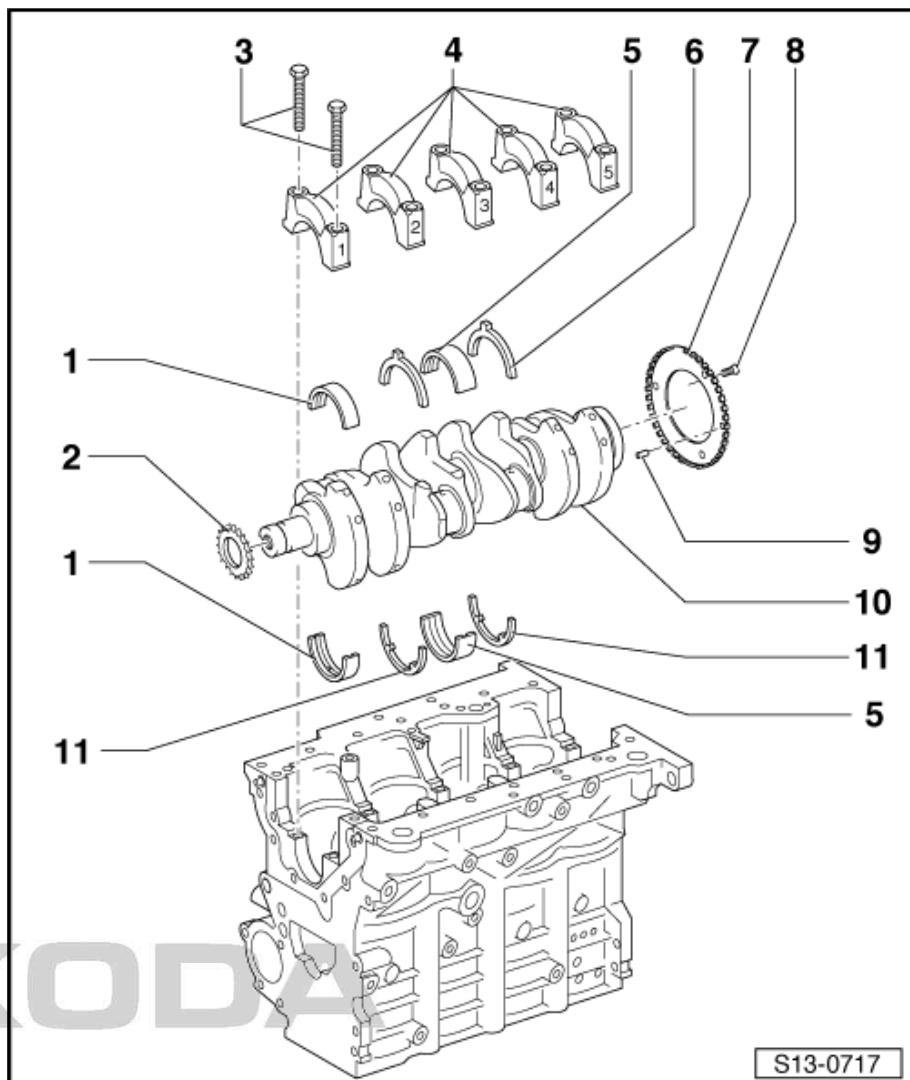
- for oil pump
- removing and installing
⇒ "3.7 Removing and installing drive chain sprocket", page 103

3 - Screw

- Replace after disassembly
- 65 Nm + 90°

4 - Bearing caps

- Bearing cover 1: on belt pulley side
- Bearing cover 3: with recesses for thrust washers
- retaining lugs of the bearing shells of the cylinder block/bearing cap must be on top of one another



S13-0717

5 - Bearing shell 3

- for bearing cap without lubricating groove
- for cylinder block with lubricating groove

6 - Thrust washer

- for bearing cap 3
- pay attention to locating element

7 - Rotor

- for engine speed sender - G28-

8 - Screw

- Replace after disassembly
- 10 Nm + 90°

9 - Fit pin

- Checking projection from crankshaft
⇒ Fig. "Checking projection of fit pin from crankshaft", page 97

10 - Crankshaft

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- Ø Crankshaft bearing journal: 54.00 mm
- Ø Conrod bearing journal: 47.80 mm
- New axial clearance: 0.07 ... 0.17 mm

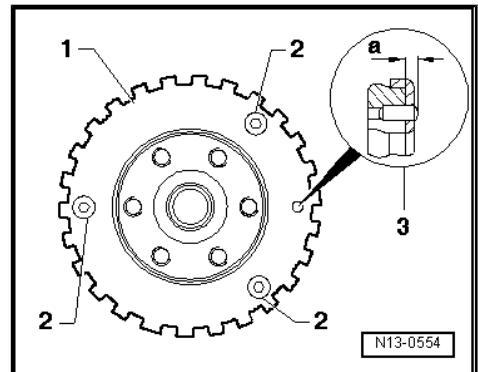
Wear limit: 0.37 mm



11 - Thrust washer

- for cylinder block, bearing 3

Checking projection of fit pin from crankshaft



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Special tools and workshop equipment required

- ◆ Depth gauge

Test sequence:

- Use depth gauge to inspect projection -a- of dowel pin when rotor -1- is removed.

1 - Rotor

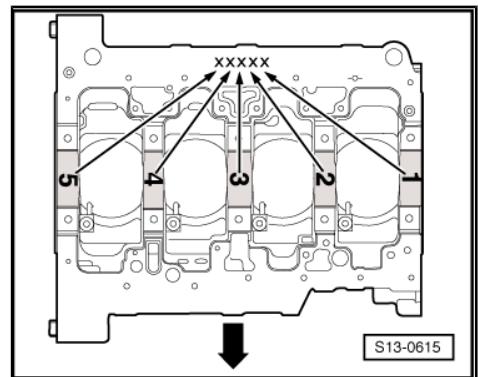
2 - Fixing screw

3 - Projection of the fit pin -3- from crankshaft -a- = 2.5...3.0 mm

Assign crankshaft bearing shells to the cylinder block

The upper bearing shells are allocated to the cylinder block with the right thickness at the works. Coloured points on the bearing shell are used to mark the bearing shell thickness.

The bearing shell is to be used at the location which is marked with letters, on the lower sealing surface of the cylinder block.



Letter on the cylinder block	Colour of the support
B	= blue
G	= yellow
W	= white

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Note

- ◆ The -arrow- shows the direction of travel.
- ◆ If the coloured points are no longer legible, use the blue bearing shell.
- ◆ The bottom crankshaft bearing shells are always supplied as replacement parts with the colour coding "yellow".



3.4 Disassembling and assembling pistons and conrods

1 - Piston rings

- Offset joint 120°
- use piston ring pliers for removing and installing
- marking "TOP" faces piston crown
- Inspect gap clearance
⇒ Fig. “Inspecting piston ring gap clearance”, page 99
- Inspect end clearance
⇒ Fig. “Inspect piston ring end clearance”, page 100

2 - Piston

- with combustion chamber
- with oil labyrinth for cooling
- mark installation position and matching cylinder
- Installation position and assignment of piston/cylinder
⇒ Fig. “Installation position and assignment of piston/cylinder”, page 100
- arrow on piston crown faces towards the belt pulley side
- replace piston if there is any sign of crack formation on the piston body
- Inspecting piston
⇒ Fig. “Inspecting pistons”, page 100
- Piston: Ø 79.47 mm
- use piston ring tensioning strap for installing
- inspect piston projection at TDC *⇒ “3.5 Checking piston projection in TDC”, page 101*

3 - Piston pin

- if stiff, heat piston to approx. 60°C
- with drift -VW 222A- removing and installing

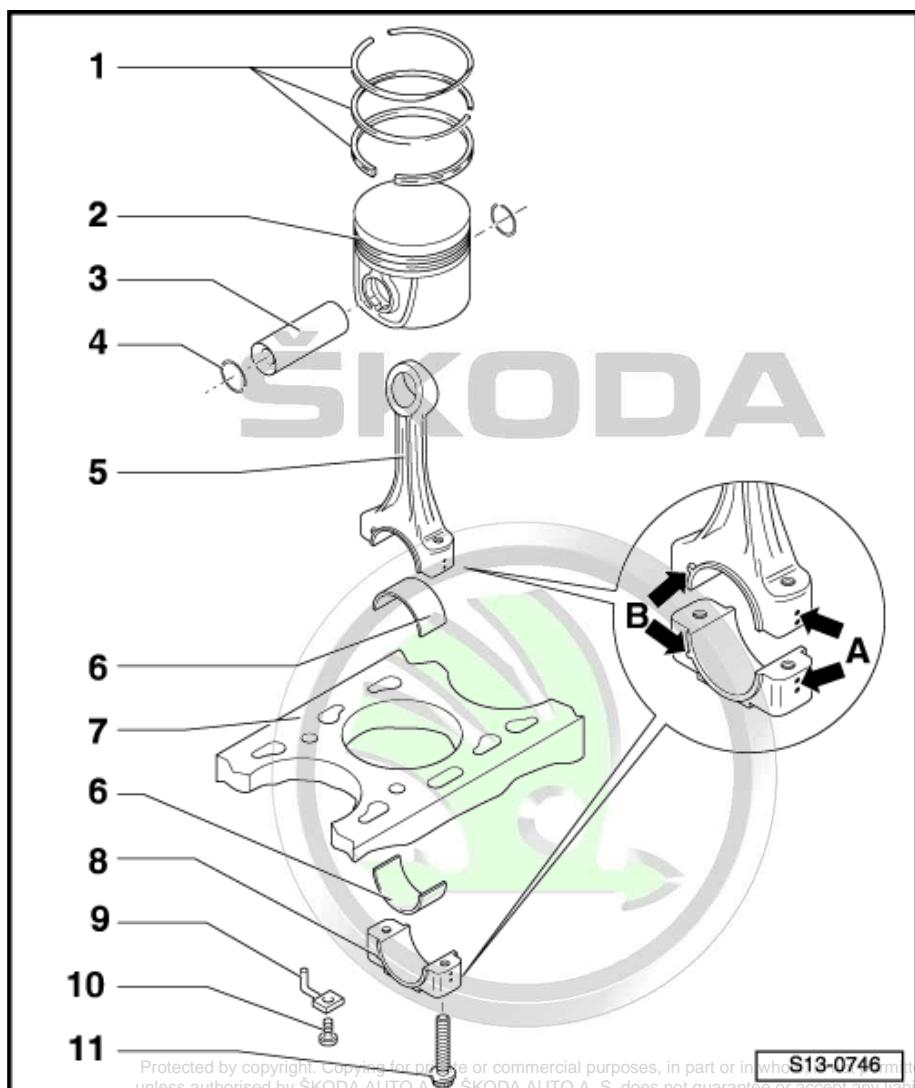
4 - Circlip

5 - Conrod

- always replace as a set only
- mark matching cylinder -A-
- Fitting position: Markings -B- point to belt pulley side
- with a split bearing cap
- separate new connecting rod *⇒ “3.6 Separating new conrod”, page 102*

6 - Bearing shell

- Fitting position *⇒ Fig. “Fitting position of the bearing shells in the conrods”, page 101*
- do not mix up used bearing shells (mark)



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- Pay attention to version: top bearing shell (towards the piston) must be in long wearing material, distinguishing feature of new bearing shells: black marking on contact surface near the separation point
- insert in middle
- check for firm seating
- Axial play wear limit: 0.37 mm

7 - Cylinder block

- inspect cylinder bore [⇒ Fig. ““Inspecting cylinder bore””, page 101](#)
- Cylinder: Ø 79.51 mm

8 - Conrod bearing cap

- Check fitting position
- cracked cover fits only in one position at the relevant conrod

9 - Oil injection nozzle

- for cooling pistons
- removing and installing [⇒ Fig. ““Oil spray nozzle and pressure valve””, page 101](#)

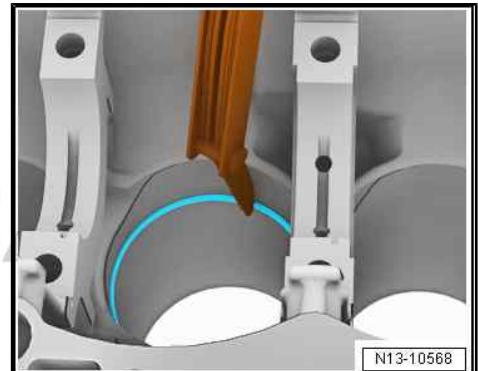
10 - Screw

- replace without sealant
- removing and installing [⇒ Fig. ““Oil spray nozzle and pressure valve””, page 101](#)
- 25 Nm

11 - Conrod bolt

- Replace after disassembly
- Oil thread and contact surface
- 30 Nm + 90°

Inspecting piston ring gap clearance



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Special tools and workshop equipment required

- ◆ Feeler gauges
- Insert ring at right angles from above down into lower cylinder opening, about 15 mm away from edge of cylinder. To insert, use a piston without piston ring.

Piston ring (dimensions in mm)	New	Wear limit
1. Compression ring	0,25 ... 0,40	1,00
2. Compression ring	0,25 ... 0,40	1,00
Oil scraper ring	0,25 ... 0,50	1,00



Inspect piston ring end clearance



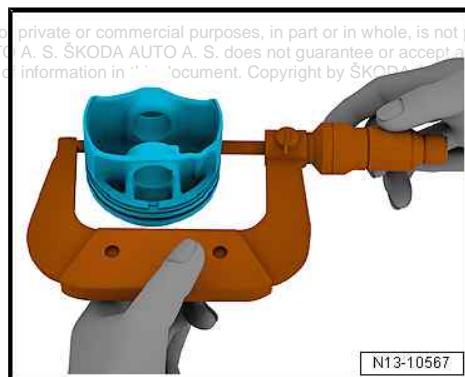
Special tools and workshop equipment required

- ◆ Feeler gauges
- Clean before inspecting the annular grooves of the piston.

Piston ring (dimensions in mm)	New	Wear limit
1. Compression ring	0,06 ... 0,09	0,25
2. Compression ring	0,05 ... 0,08	0,25
Oil scraper ring	0,03 ... 0,06	0,15

Inspecting pistons

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Special tools and workshop equipment required

- ◆ External micrometer
- Measure about 10 mm from the lower edge, offset at right angles to the piston pin shaft.
- Maximum deviation from nominal dimension: 0.04 mm.

Installation position and assignment of piston/cylinder

Pistons in cylinders 1 and 2:

- Large piston relief for inlet valve to flywheel side -arrows-

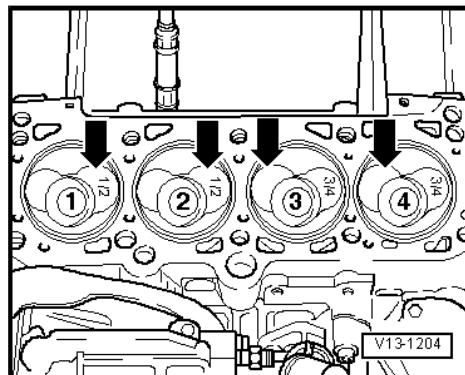
Pistons in cylinders 3 and 4:

- Large piston relief for inlet valve to belt pulley side -arrows-



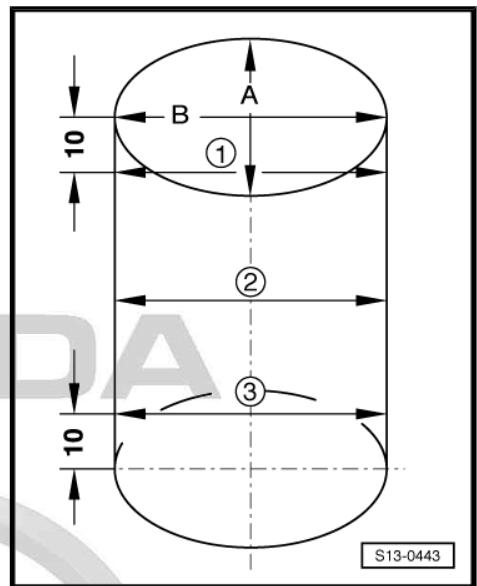
Note

- ◆ For new pistons the cylinder assignment is colour-coded on the piston crown.
- ◆ Piston in cylinder 1 and 2: Label 1/2.
- ◆ Piston in cylinder 3 and 4: Label 3/4.





Inspecting cylinder bore



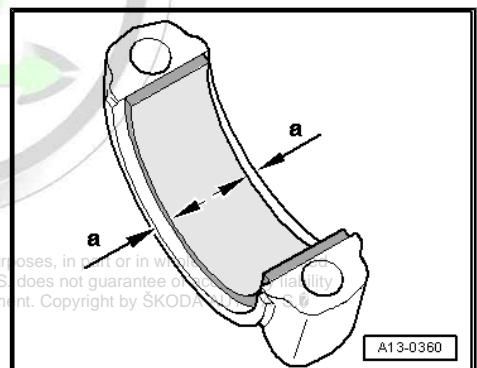
Special tools and workshop equipment required

- ◆ Internal precision measuring instrument
- Measure cylinder at 3 points crosswise in transverse direction
-A- and lengthwise -B-.
- Maximum deviation from nominal dimension: 0.10 mm.

Fitting position of the bearing shells in the conrods

- Insert bearing shell in the conrod or in the centre of the conrod bearing cap.
- Dimension -a- = 2.5 mm

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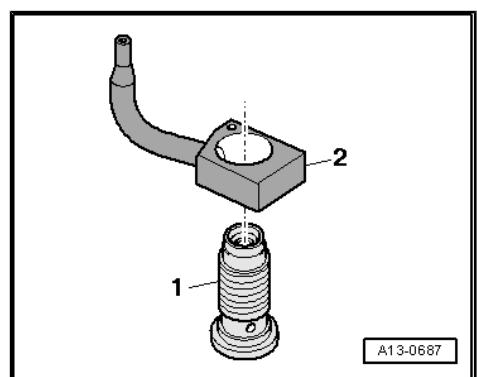
Oil spray nozzle and pressure valve

- 1 - Screw with pressure valve
 - 2 - Oil spray nozzle (for cooling piston)
- Fitting position: Align the guide edge of the oil injection nozzle to the edge of the cylinder block being worked on.



Note

- ◆ The oil injection nozzles must not be bent.
- ◆ Replace the oil injection nozzles if they are bent.



3.5 Checking piston projection in TDC

Special tools and workshop equipment required

- ◆ Measuring tool for liner pretension - MP1-107-

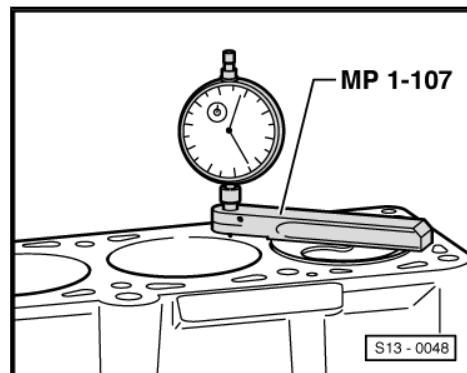


Test sequence

When fitting new pistons or a partial engine, check the piston projection in TDC on all pistons.

Depending on the piston projection fit the relevant cylinder head seal in accordance with the table below:

Piston projection over cylinder block top side mm	Marking of bores
0,91 ... 1,00	1
1,01 ... 1,10	2
1,11 ... 1,20	3



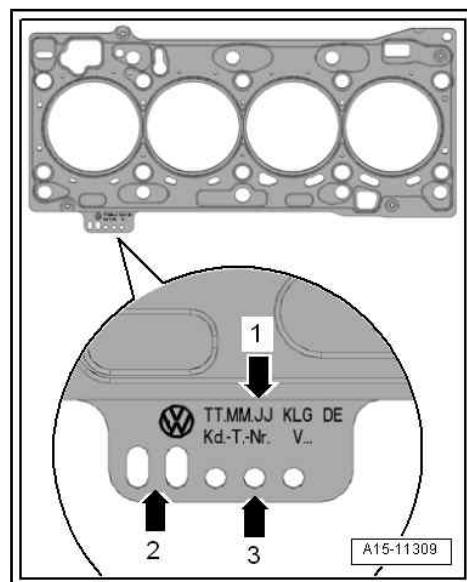
Identification of the cylinder head gasket

- ◆ Part number = arrow -1-
- ◆ Control code = arrow -2- (ignore)
- ◆ Bores = arrow -3-



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If different values are measured during the projection measurement of the piston, the greatest dimension applies for the seal assignment.



3.6 Separating new conrod

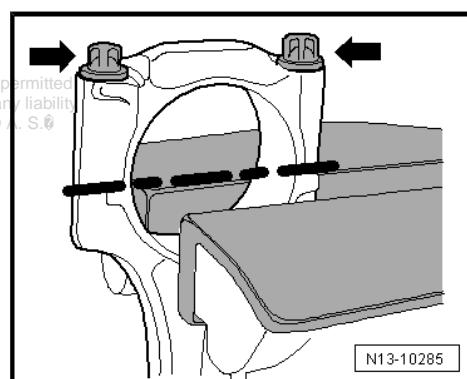
It can happen that on new connecting rods, the provided separation point is not completely cracked. If the conrod bearing cap cannot be removed by hand, then proceed as follows:

- Mark the assignment of the conrod to the cylinder.
- Slightly tension the conrod, as shown in the illustration, in a vice provided with aluminium protective jaws.



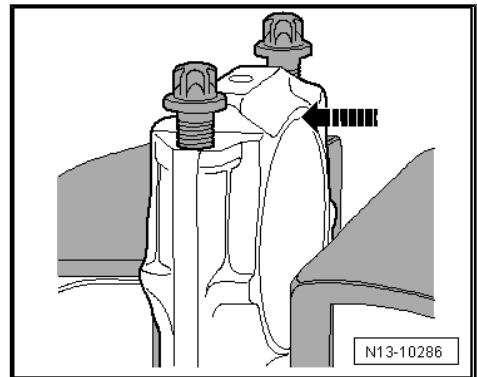
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- ◆ Only tension the conrod slightly in order to avoid damage on the conrod.
- ◆ The conrod is clamped below the broken line.
- Unscrew both screws -arrows- by approx. 5 turns.





- Carefully knock against the conrod bearing cap with a plastic hammer in -direction of arrow- in order to loosen it.



3.7 Removing and installing drive chain sprocket

Special tools and workshop equipment required

- ◆ Drive bushing - MP1-316 (30-100)-
- ◆ Two-arm extractor
- ◆ Protective gloves

Removing

- Removing the oil pan
 ⇒ [“1.5 Removing and installing oil pan \(Fabia II, Roomster\)”, page 180](#).
- Remove the sealing flange on the belt pulley side
 ⇒ [“2.5 Removing and installing the sealing flange on the belt pulley side”, page 81](#).
- Remove the drive chain sprocket for oil pump Position -19-, chain position -25- and chain-23-
 ⇒ [“1.1 Lubrication system - Summary of components”, page 172](#).
- Remove the drive chain sprocket with the two-arm extractor -2-, while protecting the shaft end of the crankshaft with a suitable washer -1-. Protected by copyright. Copying or printed communication, in part or in whole, is not permitted. SKODA AUTO V. O. S. does not guarantee or accept any liability for the correctness of information in this document. Copyright by ŠKODA AUTO V. O. S., 2015.

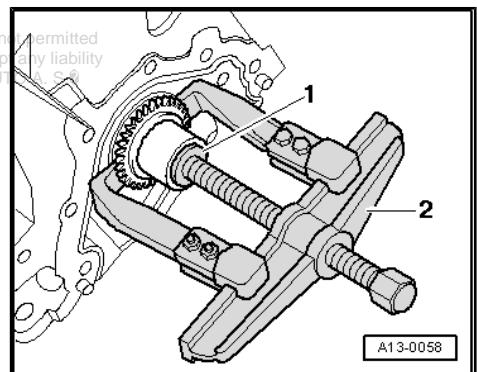
Install

Install in the reverse order of removal. When doing this, note the following:



WARNING

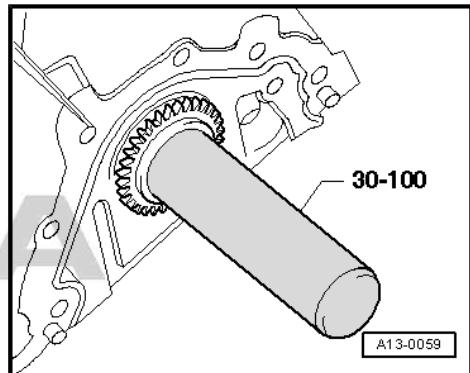
Wear protective gloves!



- Heat up the drive chain sprocket in an oven for about 15 minutes to 220 °C.
- Place the drive chain sprocket on the shaft end using pliers.



- Slide on the chain sprocket with drive bushing - MP1-316 (30-100)- until the stop on the crankshaft is reached.
- Fitting position: The broad collar of the drive chain sprocket points towards the engine.



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15 – Cylinder head, valve gear

1 Removing and installing the cylinder head

⇒ “1.1 Summary of components”, page 105

⇒ “1.2 Removing and installing cylinder head cover (Octavia II, Superb II)”, page 116

⇒ “1.3 Removing and installing cylinder head cover (Fabia II, Roomster)”, page 118

⇒ “1.4 Removing and installing cylinder head (Superb II)”, page 121

⇒ “1.5 Removing and installing cylinder head (Octavia II)”, page 129

⇒ “1.6 Removing and installing cylinder head (Fabia II, Roomster)”, page 138

⇒ “1.7 Testing compression pressure (Octavia II, Superb II)”, page 144

⇒ “1.8 Testing compression pressure (Fabia II, Roomster)”, page 145

1.1 Summary of components

⇒ “1.1.1 Summary of components for engine with engine identification characters BXE, BJB, BKC (Octavia II, Superb II)”, page 106

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⇒ “1.1.2 Summary of components for engine with identification characters BLS”, page 109

⇒ “1.1.3 Summary of components for engine with engine identification characters BSW (Fabia II, Roomster)”, page 113



1.1.1 Summary of components for engine with engine identification characters BXE, BJB, BKC (Octavia II, Superb II)

Note

- ◆ *Cylinder heads with cracks between the valve seats may continue to be used without any reduction in the life time provided the cracks are slight and max. 0.5 mm wide.*
- ◆ *It is not permissible to rework the cylinder heads of diesel engines.*
- ◆ *Replace cylinder head bolts.*
- ◆ *When installing an exchange cylinder head with the camshaft installed, it is necessary to oil the contact surfaces between the bucket tappet and the cam track after installing the cylinder head.*
- ◆ *Do not remove the plastic bases supplied as a protection for the open valves of an exchange cylinder head with installed camshaft until just before fitting on the cylinder head.*
- ◆ *When replacing the cylinder head, replace all the coolant.*
- ◆ *In case of contaminated engine oil, carry out oil change:*
 - ◆ ⇒ Maintenance ; Booklet Superb II .
 - ◆ ⇒ Maintenance ; Booklet Octavia II .
- ◆ *Engine temperature should not exceed 35 °C, because the cylinder head could be twisted when slackening the screws.*

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**1 - Screw**

- mount using locking agent -D 000 600 A2-
- 10 Nm

2 - Screw

- 15 Nm

3 - Screw

- Replace after disassembly
- to release and tighten use the counterholder -T10051-
- 100 Nm

4 - Hub

- with sensor rotor for the Hall sensor -G40-
- to remove the extractor -T10052- use
- removing and installing
⇒ [“2.3 Replacing cam-shaft gasket ring”](#), page 150

5 - Cylinder head

- removing and installing:

- ◆ Octavia II
⇒ [“1.5 Removing and installing cylinder head \(Octavia II\)”, page 129](#)
- ◆ Superb II
⇒ [“1.4 Removing and installing cylinder head \(Superb II\)”, page 121](#)

- check for distortion
⇒ Fig. [“Inspecting the cylinder head for distortion”](#), page 108
- after replacing fill entire system with fresh coolant

6 - Cylinder head bolt

- Replace after disassembly
- pay attention to order for slackening ⇒ [page 126](#)
- pay attention to order for tightening ⇒ [page 127](#)
- before installing, insert washers into the cylinder head

7 - Gasket for cylinder head cover

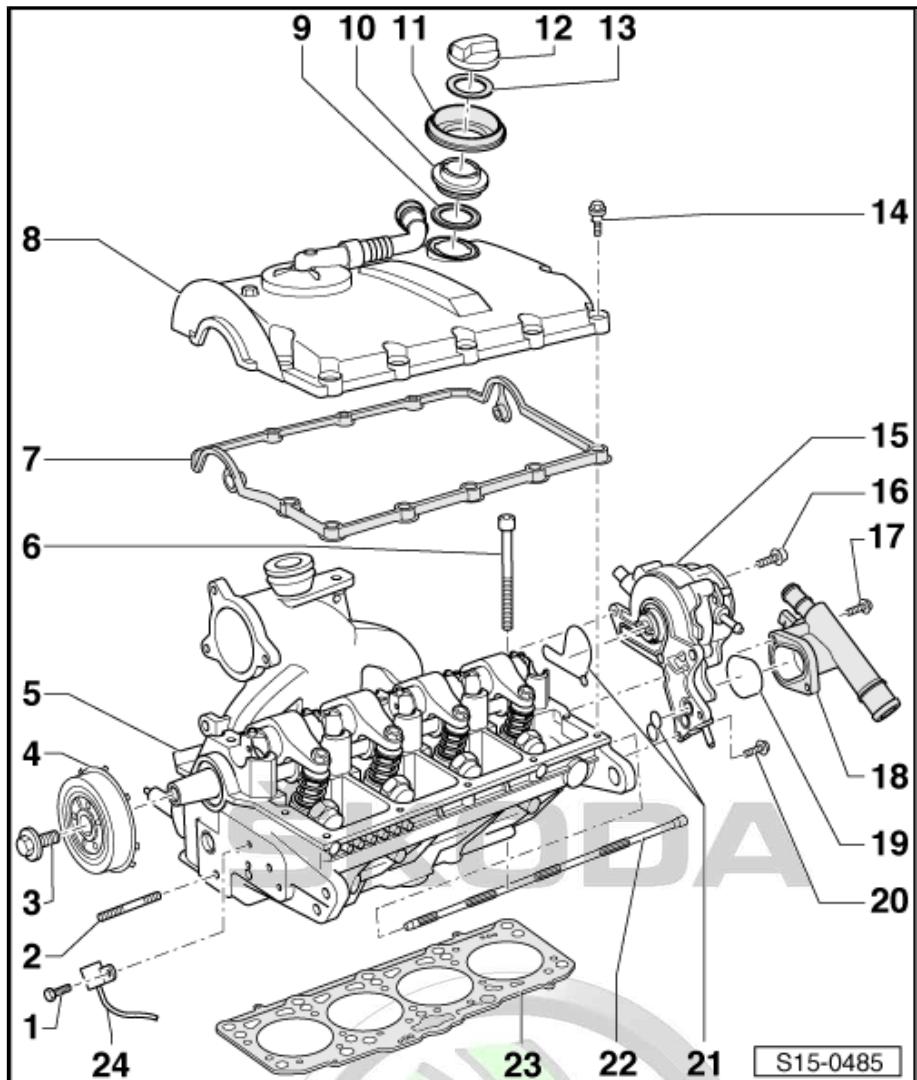
- replace if damaged or leaking
- before fitting, seal contact faces with sealant -D 454 300 A2- ⇒ [page 117](#)

8 - Cylinder head cover

- removing and installing
⇒ [“1.2 Removing and installing cylinder head cover \(Octavia II, Superb II\)”, page 116](#)

9 - Gasket

- replace if damaged or leaking



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10 - Intermediate flange

11 - Sealing sleeve

12 - Screw cap

13 - Gasket

- replace if damaged or leaking

14 - Screw

- pay attention to sequence for loosening and tightening
⇒ "1.2 Removing and installing cylinder head cover (Octavia II, Superb II)", page 116
- 10 Nm

15 - Tandem pump

- removing and installing *⇒ "2.12 Removing and installing the tandem pump", page 282*

16 - Screw

- 20 Nm

17 - Screw

- 10 Nm

18 - Coolant flange

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- Replace after disassembly

20 - Screw

- Replace after disassembly

21 - Gasket rings

- Replace after disassembly

22 - Mixing tube

- inserted into cylinder head
- pull out with hook

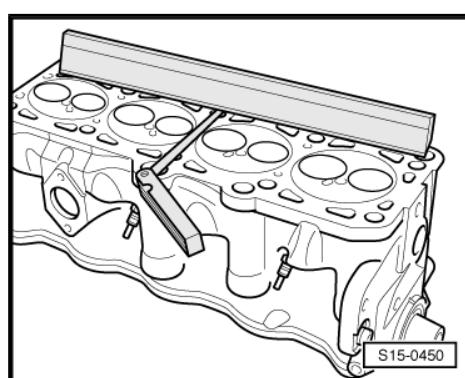
23 - Cylinder head gasket

- Replace after disassembly
- Pay attention to the marking *⇒ Fig. "Identification of the cylinder head gasket", page 109*

24 - Hall sender - G40-

- for camshaft position

Inspecting the cylinder head for distortion



Special tools and workshop equipment required

- ◆ Feeler gauges
- ◆ Knife-edge straightedge



- Inspect cylinder head at several points for distortion using a knife-edge straightedge and feeler gauge.
- Maximum permitted distortion: 0.1 mm.

Note

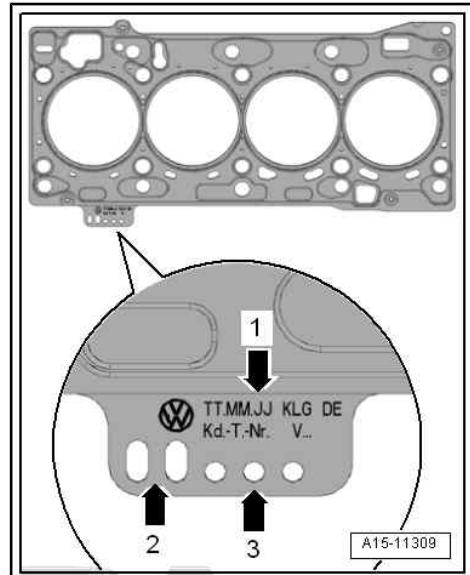
It is not permissible to rework the cylinder heads of diesel engines.

Identification of the cylinder head gasket

- ◆ Part number = arrow -1-
- ◆ Control code = -arrow 2- (ignore!)
- ◆ Bores = arrow -3-

Note

Differing thicknesses of cylinder head gaskets are inserted according to the piston projection. Only install a new gasket with the same identification markings if only replacing the gasket.



1.1.2 Summary of components for engine with identification characters BLS

Note

- ◆ *Cylinder heads with cracks between the valve seats may continue to be used without any reduction in the life time provided the cracks are slight and max. 0.5 mm wide.*
- ◆ *It is not permissible to rework the cylinder heads of diesel engines.*
- ◆ *Replace cylinder head bolts.*
- ◆ *When installing an exchange cylinder head with the camshaft installed, it is necessary to oil the contact surfaces between the bucket tappet and the cam track after installing the cylinder head.*
- ◆ *Do not remove the plastic bases supplied as a protection for the open valves of an exchange cylinder head with installed camshaft until just before fitting on the cylinder head.*
- ◆ *When replacing the cylinder head, replace all the coolant.*
- ◆ *In case of contaminated engine oil, carry out oil change:* SKODA AUTO A. S. does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by ŠKODA AUTO A. S. ©
- ◆ ⇒ Maintenance ; Booklet *Fabia II*.
- ◆ ⇒ Maintenance ; Booklet *Roomster*.
- ◆ ⇒ Maintenance ; Booklet *Superb II*.
- ◆ ⇒ Maintenance ; Booklet *Octavia II*.
- ◆ *Engine temperature should not exceed 35 °C, because the cylinder head could be twisted when slackening the screws.*

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1 - Vacuum hose

- for connecting piece of tandem pump / brake booster

2 - Screw cap
3 - Connecting pipe

- for crankcase ventilation
- To intake hose

4 - Screw

- Pay attention to the sequence for loosening and tightening:
- ◆ Octavia II, Superb II
⇒ [“1.2 Removing and installing cylinder head cover \(Octavia II, Superb II\)”, page 116](#)
- ◆ Fabia II, Roomster
⇒ [“1.3 Removing and installing cylinder head cover \(Fabia II, Roomster\)”, page 118](#)

- 10 Nm

5 - Tandem pump

- removing and installing
⇒ [“2.12 Removing and installing the tandem pump”, page 282](#)

6 - Screw

- 20 Nm

7 - Screw

- 10 Nm

8 - Coolant flange
9 - O-ring

- Replace after disassembly

10 - Screw

- 10 Nm

11 - Gasket rings

- Replace after disassembly

12 - Mixing tube

- inserted in the head
- pull out with hook

13 - Cylinder head gasket

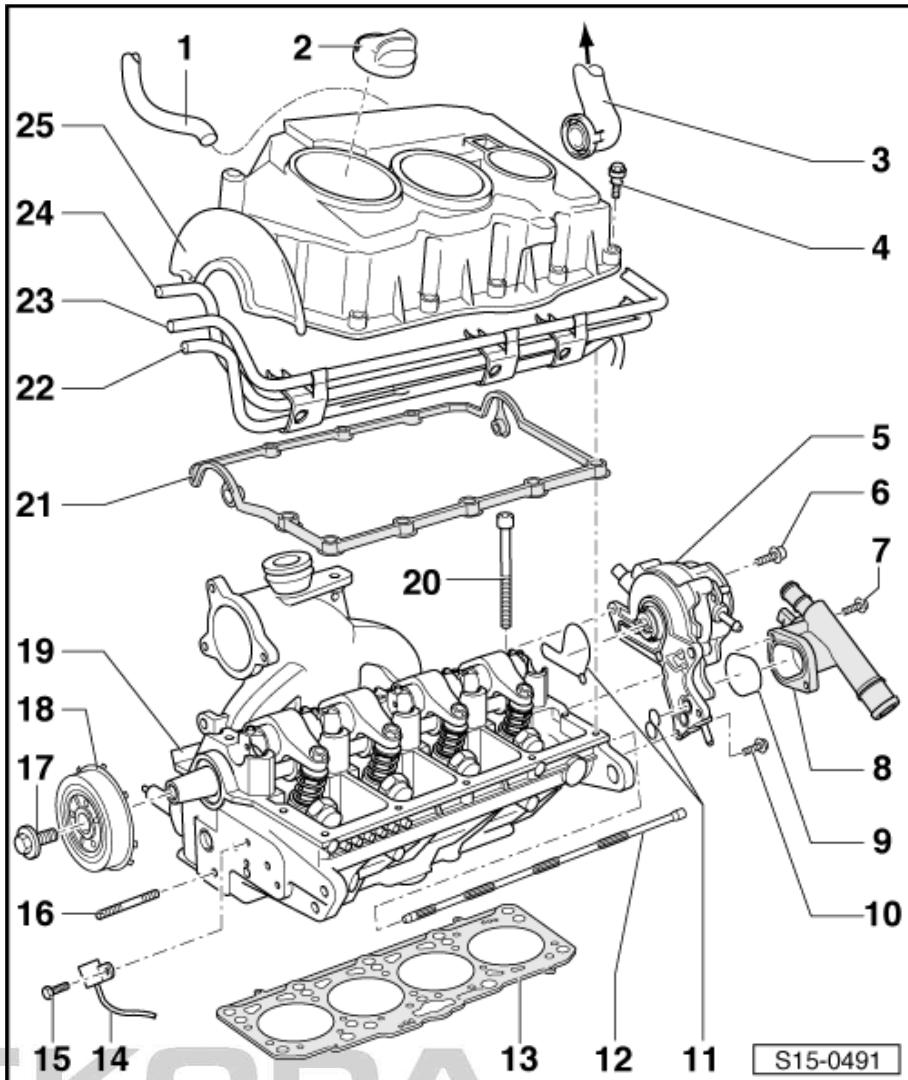
- Replace after disassembly
- Pay attention to the marking ⇒ [Fig. “Identification of the cylinder head gasket”, page 112](#)

14 - Hall sender - G40-

- for camshaft position
- removing and installing: Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by ŠKODA AUTO A. S. ŠKODA AUTO A. S. does not guarantee or accept any liability

◆ Superb II ⇒ [“1.4 Removing and installing cylinder head \(Superb II\)”, page 121](#)

◆ Fabia II, Roomster ⇒ [“1.6 Removing and installing cylinder head \(Fabia II, Roomster\)”, page 138](#)



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- ◆ Octavia II ⇒ “1.5 Removing and installing cylinder head (Octavia II)”, page 129

15 - Screw

- mount using locking agent -D 000 600 A2-
- 10 Nm

16 - Screw

- 15 Nm

17 - Screw

- Replace after disassembly
- to release and tighten use the counterholder -T10051-
- 100 Nm

18 - Hub

- with sensor rotor for the Hall sensor -G40-
- to remove the extractor -T10052- use
- remove ⇒ “2.3 Replacing camshaft gasket ring”, page 150

19 - Cylinder head

- removing and installing:
- ◆ Superb II ⇒ “1.4 Removing and installing cylinder head (Superb II)”, page 121
- ◆ Fabia II, Roomster ⇒ “1.6 Removing and installing cylinder head (Fabia II, Roomster)”, page 138
- ◆ Octavia II ⇒ “1.5 Removing and installing cylinder head (Octavia II)”, page 129
 - check for distortion ⇒ Fig. ““Inspecting the cylinder head for distortion””, page 112
 - after replacing fill entire system with fresh coolant

20 - Cylinder head bolt

- Replace after disassembly
- pay attention to order for slackening ⇒ Fig. ““Loosening order””, page 112
- pay attention to order for tightening ⇒ Fig. ““order of tightening””, page 113
- before installing, insert washers into the cylinder head

21 - Gasket for cylinder head cover

- replace if damaged or leaking

22 - Fuel return-flow line

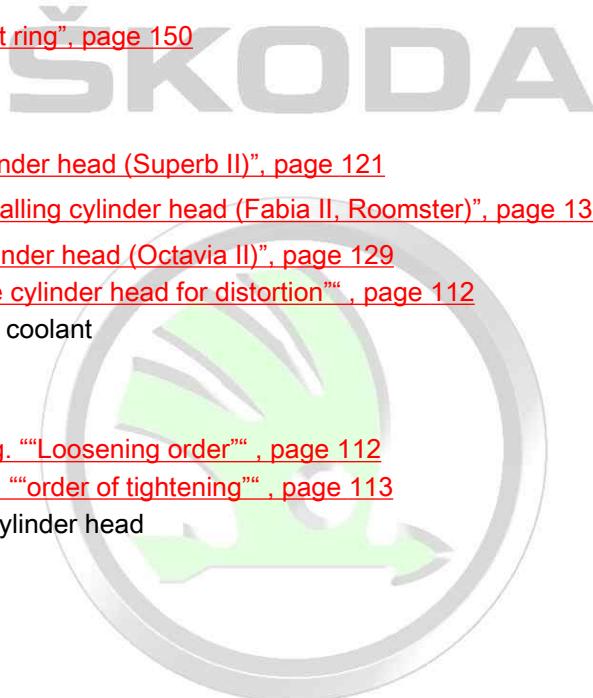
23 - Fuel feed line

24 - Coolant line

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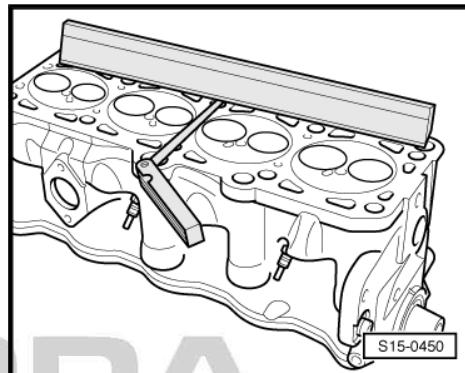
25 - Cylinder head cover

- removing and installing:
- ◆ Octavia II, Superb II
 - ⇒ “1.2 Removing and installing cylinder head cover (Octavia II, Superb II)”, page 116
- ◆ Fabia II, Roomster ⇒ “1.3 Removing and installing cylinder head cover (Fabia II, Roomster)”, page 118





Inspecting the cylinder head for distortion



Special tools and workshop equipment required

- ◆ Feeler gauges
- ◆ Knife-edge straightedge
- Inspect cylinder head at several points for distortion using a knife-edge straightedge and feeler gauge.
- Maximum permitted distortion: 0.1 mm.



It is not permissible to rework the cylinder heads of diesel engines.

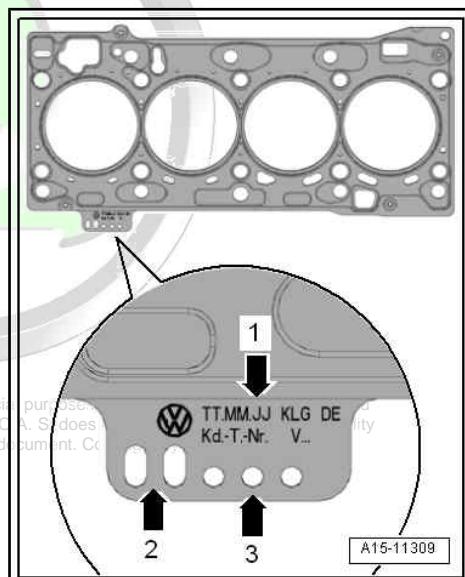
Identification of the cylinder head gasket

- ◆ Part number = arrow -1-
- ◆ Control code = -arrow 2- (ignore!)
- ◆ Bores = arrow -3-

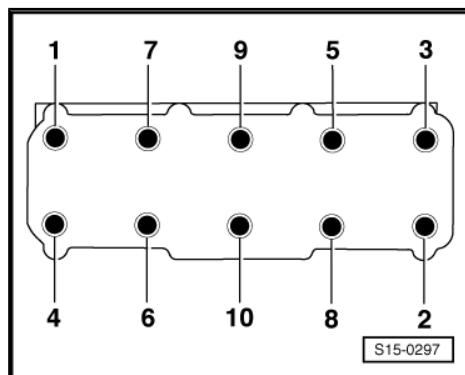


Differing thicknesses of cylinder head gaskets are inserted according to the piston projection. Only install a new gasket with the same identification markings if only replacing the gasket.

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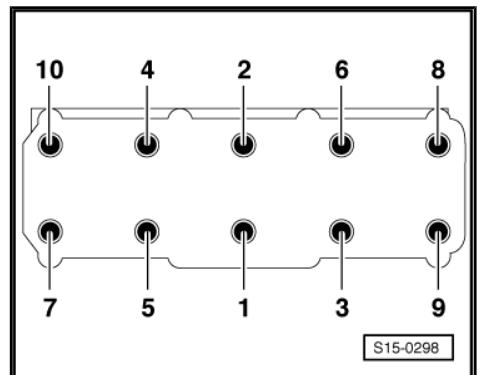


Loosening order





order of tightening



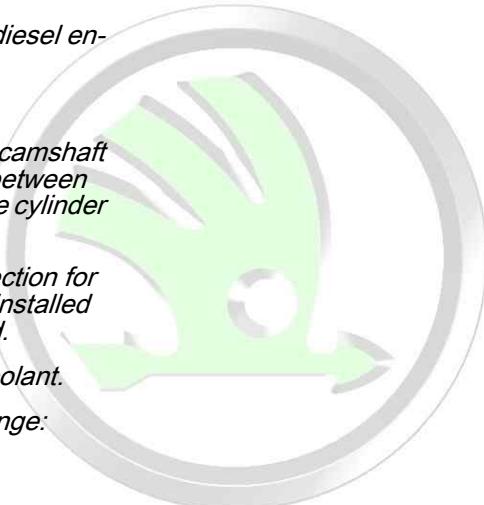
1.1.3 Summary of components for engine with engine identification characters BSW (Fabia II, Roomster)



Note

- ◆ Cylinder heads with cracks between the valve seats may continue to be used without any reduction in the life time provided the cracks are slight and max. 0.5 mm wide.
- ◆ It is not permissible to rework the cylinder heads of diesel engines.
- ◆ Replace cylinder head bolts.
- ◆ When installing an exchange cylinder head with the camshaft installed, it is necessary to oil the contact surfaces between the bucket tappet and the cam track after installing the cylinder head.
- ◆ Do not remove the plastic bases supplied as a protection for the open valves of an exchange cylinder head with installed camshaft until just before fitting on the cylinder head.
- ◆ When replacing the cylinder head, replace all the coolant.
- ◆ In case of contaminated engine oil, carry out oil change:
- ◆ ⇒ Maintenance ; Booklet Fabia II .
- ◆ ⇒ Maintenance ; Booklet Roomster .
- ◆ Engine temperature should not exceed 35°C, because the cylinder head could be twisted when slackening the screws.

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1 - Cylinder head cover

- Removing and installing
⇒ [“1.3 Removing and installing cylinder head cover \(Fabia II, Roomster\)”, page 118](#)
- before fitting on, thoroughly clean sealing surface with a clean cloth

2 - Pressure control valve

- for crankcase ventilation

3 - to charge air pipe at the rear
4 - Screw cap

- Replace seal if damaged

5 - Sealing sleeve

- replace if damaged

6 - Bolt with guide sleeve,

- first tighten all screws by hand
- 10 Nm

7 - Gasket for cylinder head cover

- replace if damaged

8 - Screw

- 20 Nm

9 - Lifting eye
10 - Central plug connection

- for pump-nozzle units

11 - Screw

- 8 Nm

12 - from brake servo unit
13 - Tandem pump

- for vacuum and fuel supply
- removing and installing ⇒ [“2.12 Removing and installing the tandem pump”, page 282](#)
- checking ⇒ [“2.13 Inspecting a tandem pump”, page 284](#) .

14 - Screw

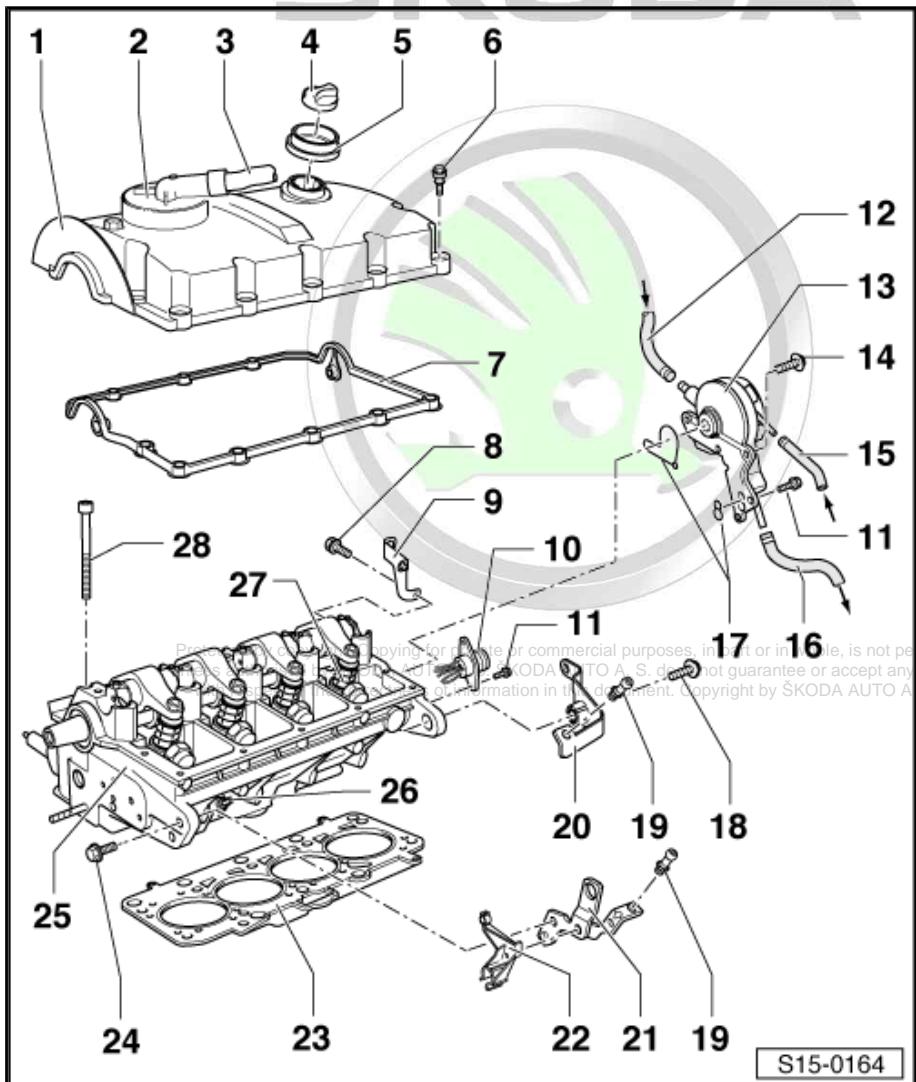
- 20 Nm

15 - Intake hose

- from fuel filter
- white marking
- check for firm seating
- secure with spring strap clamps

16 - Return-flow hose

- to fuel filter
- blue marking
- check for firm seating
- secure with spring strap clamps



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17 - Gasket

- replace

18 - Screw

- 20 Nm

19 - Ball knob screw

- 8 Nm

20 - Support

- for engine cover

21 - Lifting eye

- with bracket for engine cover

22 - Support

- for coolant hose

23 - Cylinder head gasket

- Replace after disassembly
- Pay attention to the marking [⇒ Fig. “Identification of the cylinder head gasket”](#), page 116

24 - Screw

- 20 Nm

25 - Cylinder head

- check for distortion [⇒ Fig. “Inspecting the cylinder head for distortion”](#), page 115
- removing and installing [⇒ “1.6 Removing and installing cylinder head \(Fabia II, Roomster\)”](#), page 138
- after replacing fill entire system with fresh coolant

26 - Glow plug

- out of metal
- checking [⇒ “1.3 Checking metal glow plugs”](#), page 428 .
- 15 Nm

27 - The unit injector

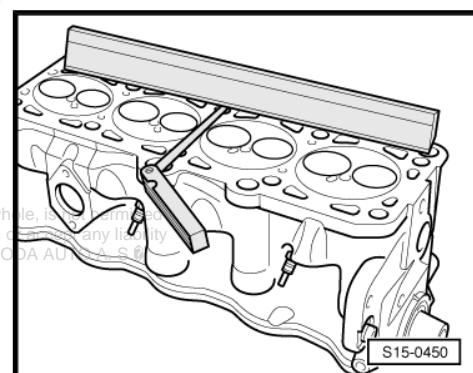
- removing and installing [⇒ “1.9 Removing and installing the unit injector”](#), page 370

28 - Cylinder head bolt

- Replace after disassembly
- pay attention to order for slackening [⇒ page 143](#)
- pay attention to order for tightening [⇒ page 144](#)
- before installing, insert washers into the cylinder head

Inspecting the cylinder head for distortion

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Special tools and workshop equipment required

- ◆ Feeler gauges
- ◆ Knife-edge straightedge



Maximum permitted distortion: 0.1 mm



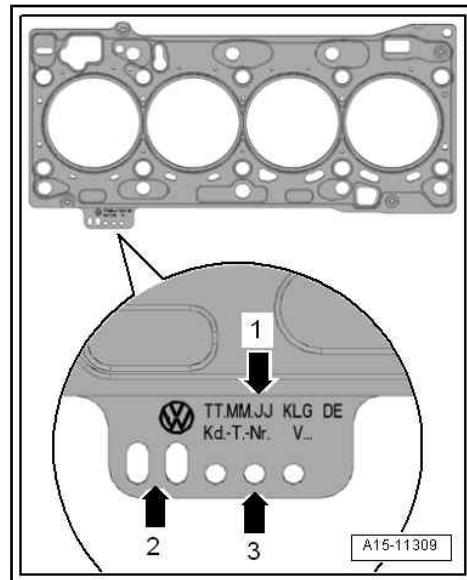
It is not permissible to rework the cylinder heads of diesel engines.

Identification of the cylinder head gasket

- ◆ Part number = arrow -1-
- ◆ Control code = arrow -2- (ignore)
- ◆ Bores = arrow -3-



Cylinder head seals of different thicknesses are fitted depending on the piston projection from the cylinder block. If only the seal is replaced the new seal must bear the same identification.



1.2 Removing and installing cylinder head cover (Octavia II, Superb II)

Special tools and workshop equipment required

- ◆ Sealant remover gasket stripper (bearing code GST, bearing article no. R 34402), manufacturer Retech s.r.o.
- ◆ Cleaning and degreasing agent, e.g. -D 009 401 04-
- ◆ Protective goggles and gloves
- ◆ Sealant - D 454 300 A2-

Removing

- Remove engine cover.
- Remove charge air pipe to connection fitting, to do so pull the retaining clips.

For engine with identification characters BXE, BJB, BKC

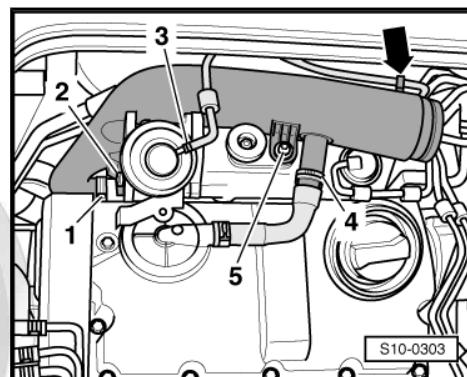


Coolant hoses as well as fuel lines remain connected.

- Disconnect vacuum hose -3- from the mechanical exhaust gas recirculation valve.
- Remove crankcase ventilation hose -4- from charge air pipe, unscrew screws -2- and -5- and press the pipe to the rear.

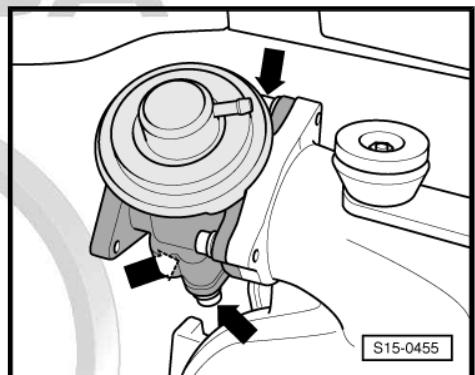


The charge air pipe remains connected at the turbocharger -1-.

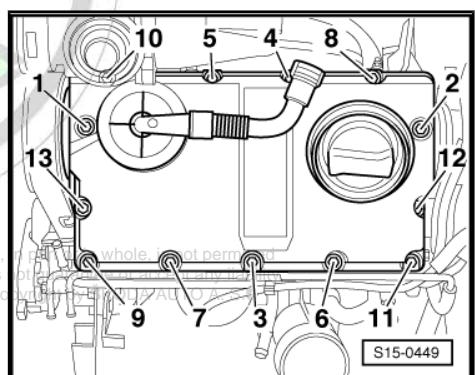




- Unscrew connection fitting with mechanical exhaust gas recirculation valve -arrows-.
- Remove top toothed belt guard, to do so release retaining clips.



- Unscrew the screws for the cylinder head cover in the sequence -13 ... 1- and remove cover.



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For engine with engine code BLS

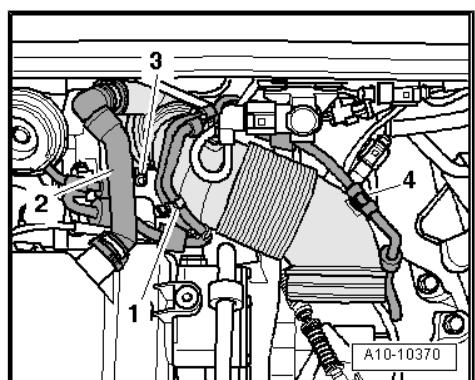
- Pull off hose -2- for crankcase ventilation.
- Pull off the vacuum hose to the vacuum reservoir at the cylinder head.
- Release fuel hoses and coolant hoses at right air guide pipe.



Note

Coolant hoses as well as fuel lines remain connected.

- Remove top toothed belt guard, to do so release retaining clips.
- Unscrew the screws for the cylinder head cover in the sequence -13 ... 1- and remove cover.



Install

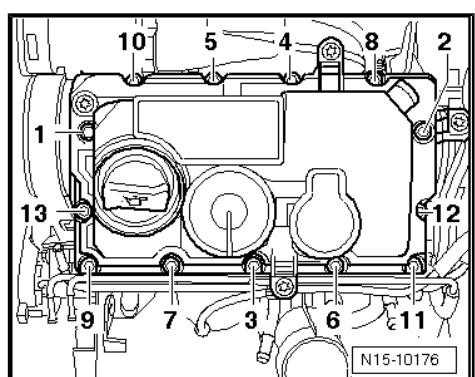
Install in the reverse order of removal. When doing this, note the following:



WARNING

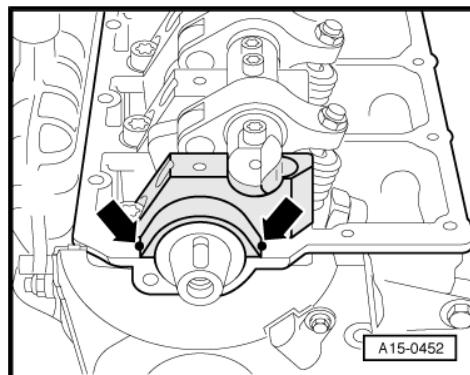
Wear protective gloves when working with sealant and grease remover!

- Clear sealing surface on bearing cap and on cylinder head from sealant residues with chemical gasket remover.
- Degrease the sealing surfaces.





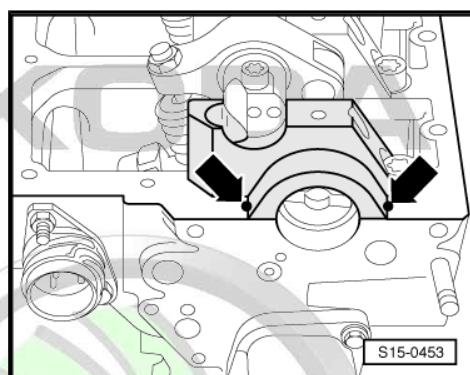
- Apply on both edges on the sealing surfaces of the bearing cap/cylinder head -arrows- at front ...



- ... and apply at rear with a small amount of (Ø approx. 5 mm) sealant -D 454 300 A2- -arrows-.

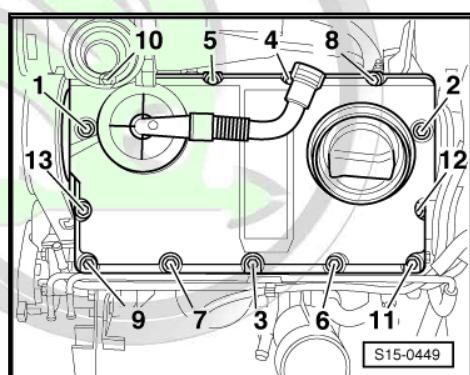


Replace the gasket and the screws for the cylinder head cover in case of damage.



For engine with identification characters BXE, BJB, BKC

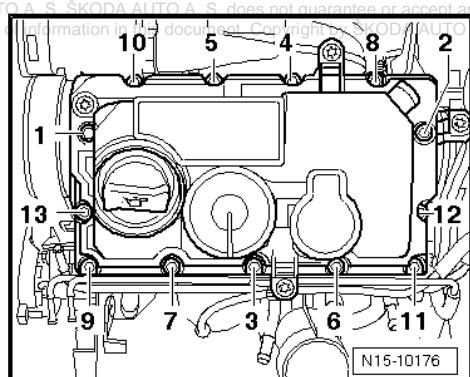
- Tighten the screws for the cylinder head cover in the sequence -1 ... 13- to 10 Nm.



For engine with engine code BLS

- Tighten the screws for the cylinder head cover in the sequence -1 ... 13- to 10 Nm.

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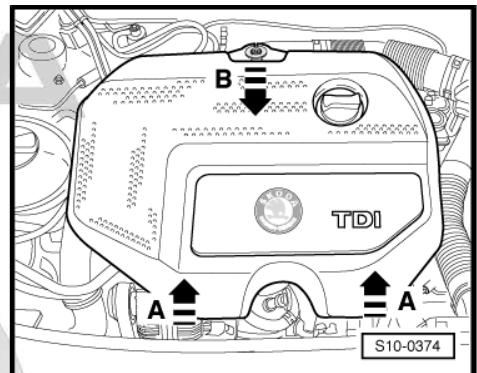
1.3 Removing and installing cylinder head cover (Fabia II, Roomster)

Special tools and workshop equipment required

- ◆ Sealant remover gasket stripper (bearing code GST, bearing article no. R 34402), manufacturer Retech s.r.o.
- ◆ Cleaning and degreasing agent , e.g. -D 009 401 04-



- ◆ Protective goggles and gloves
- ◆ Sealant - D 454 300 A2-
- Lift the engine cover at the sides -arrows A- and pull out towards the front -arrow B-.
- Remove charge-air pipe from connection fitting, to do so pull the retaining clips.



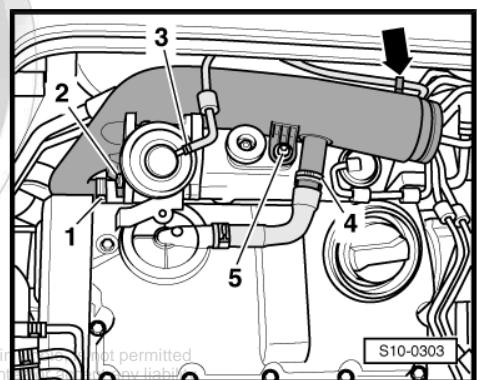
For engine with engine code AXR, BSW



Coolant hoses as well as fuel lines remain connected.

- Disconnect vacuum hose -3- from the mechanical exhaust gas recirculation valve .
- Remove crankcase ventilation hose -4- from charge air pipe, unscrew screws -2- and -5- and press the pipe to the rear.

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The charge air pipe remains connected at the turbocharger -1-.

- Remove connection fitting with mechanical exhaust gas recirculation valve and intake manifold flap motor -V157-
[⇒ “1.3.2 Summary of components for engine with identification characters BXE, BKC, AXR, BSW”, page 362](#) .
- Remove top toothed belt guard, to do so release retaining clips.
- Release the screws for the cylinder head cover in the sequence -13 ... 1- and remove the cover.

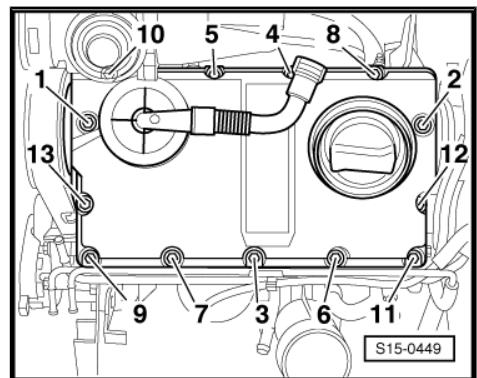
For engine with engine code BLS

- Detach the hose for the crankcase ventilation from the cylinder head cover.
- Pull off the vacuum hose to the vacuum reservoir at the cylinder head.
- Release fuel hoses and coolant hoses from top charge-air pipe.



Coolant hoses as well as fuel lines remain connected.

- Remove top toothed belt guard, to do so release retaining clips.





- Release the screws for the cylinder head cover in the sequence -13 ... 1- and remove the cover.

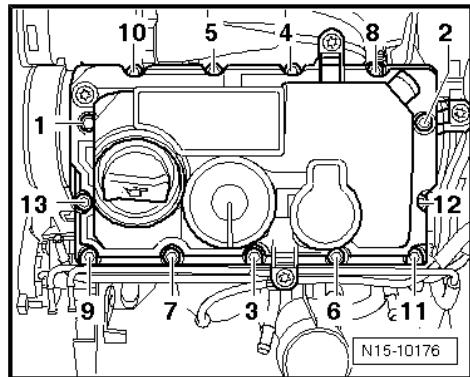
Install

Install in the reverse order of removal. When doing this, note the following:



WARNING

Wear protective gloves when working with sealant and grease remover!



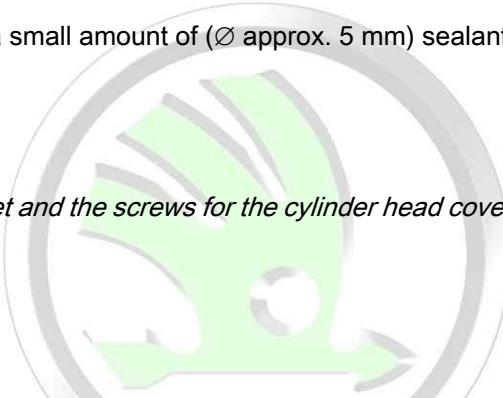
- Clear sealing surface on the cylinder head cover and on the cylinder head from sealant residues with chemical sealant remover.
- Degrease the sealing surfaces.
- Apply on both edges on the sealing surfaces of the bearing cap/cylinder head -arrows- at front ...



- ... and at rear a small amount of (\varnothing approx. 5 mm) sealant -arrows-.



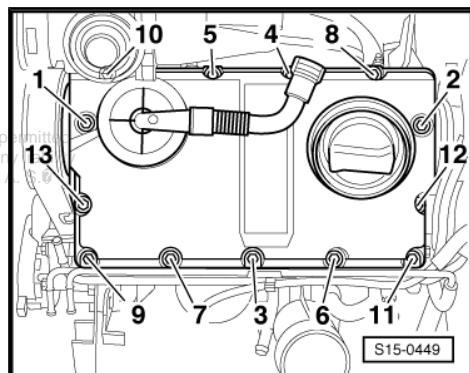
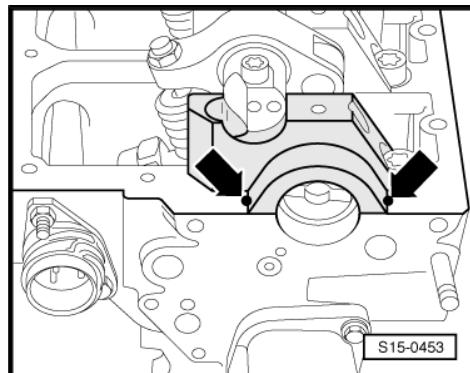
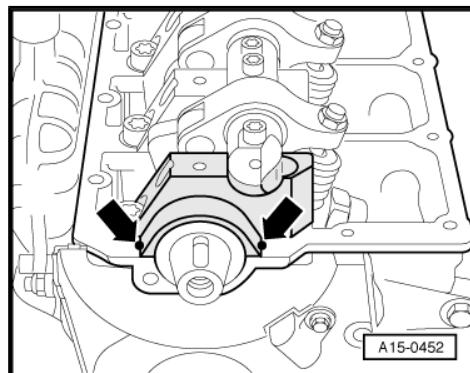
Replace the gasket and the screws for the cylinder head cover in case of damage.



For engine with engine code AXR, BSW

- Tighten the screws for the cylinder head cover in the sequence -1 ... 13- to 10 Nm.

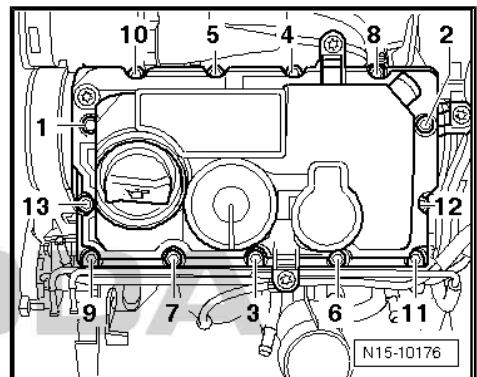
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For engine with engine code BLS

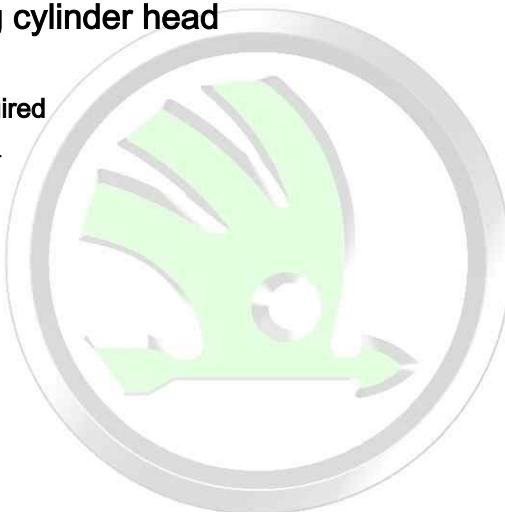
- Tighten the screws for the cylinder head cover in the sequence -1 ... 13- to 10 Nm.



1.4 Removing and installing cylinder head (Superb II)

Special tools and workshop equipment required

- ◆ Supporting device - MP9-200 (10-222A)-
- ◆ Hook - MP9-200/10 (10-222A/10)-
- ◆ Workshop crane
- ◆ Lifting device - MP9-201 (2024 A)-
- ◆ Catch pan , e.g. -VAS 6208-
- ◆ Pliers for spring strap clamps
- ◆ Support - T10014-
- ◆ Counterholder - T10051-
- ◆ Extractor - T10052-
- ◆ Rig pin - 3359- or -MP1-301- Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by ŠKODA AUTO A. S. ŠKODA AUTO A. S. does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by ŠKODA AUTO A. S. ®
- ◆ Two-hole nut turner - T10020-
- ◆ Crankshaft arrester - T10050- or crankshaft arrester - T10100-
- ◆ Locking pin - T10060A-
- ◆ Sealant remover gasket stripper (bearing code GST, bearing article no. R 34402), manufacturer Ritech s.r.o.
- ◆ Protective goggles and gloves



1.4.1 Removing

Requirements

- Engine temperature should not exceed 35 °C, because the cylinder head could be twisted when slackening the screws.
- The pistons must not be in TDC.
- Switch off ignition and pull out ignition key.
- Remove engine cover.
- Remove air filter:
- ◆ Engine identification characters BXE
[⇒ "2.5.1 Summary of components for engine with identification characters BXE", page 324 .](#)
- ◆ Engine identification characters BLS
[⇒ "2.5.2 Summary of components for engine with identification characters BLS", page 326 .](#)



- Remove charge air pipes and charge air hoses
 ⇒ [“1.4 Summary of components - air filter \(Octavia II, Superb II\)”, page 364](#) .
- Remove the middle sound dampening system ⇒ Body Work;
 Rep. gr. 50 .

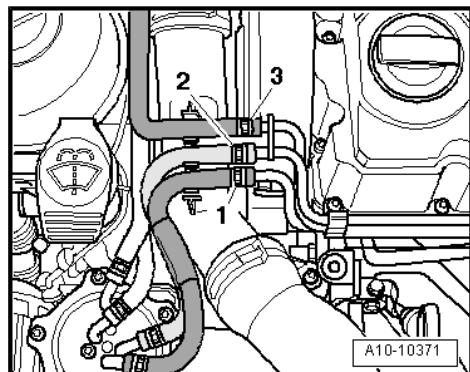
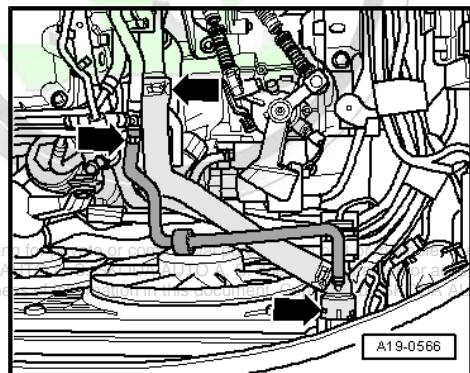


WARNING

Hot steam or hot coolant may escape when the compensation bottle is opened. Cover the cap with a cloth and open carefully.

- Drain coolant
 ⇒ [“1.6 Drain and fill coolant \(Octavia II, Superb II\)”, page 205](#) .
- Remove coolant hose between engine and radiator -arrows-.
- Use hand vacuum pump to extract the fuel at the return-flow hose of the tandem pump
 ⇒ [“2.12 Removing and installing the tandem pump”, page 282](#) .

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- Detach the fuel intake hose -2- and the fuel return hose -1- from the fuel lines.
- Detach coolant hose -3-.

For engine with identification characters BXE

- Remove pre-exhaust pipe
 ⇒ [“1.1.1 Summary of components for engine with identification characters BXE”, page 380](#) .

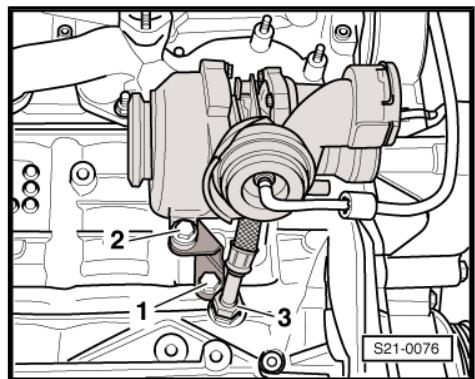


- Release screws -1- and -2- and remove bracket for turbocharger.



Collect any engine oil which flows out with a cloth.

- Remove the oil return line -3- at the cylinder block.
- Unscrew oil feed line from turbocharger, exhaust manifold and from coolant pipe and lay it to one side.



For engine with engine code BLS

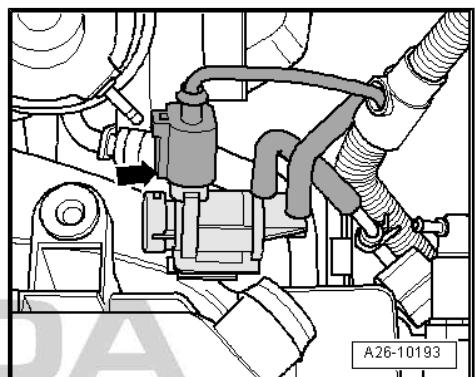
- Remove the air guide pipe between the exhaust turbocharger and the charge air cooler
[⇒ “2.5.2 Summary of components for engine with identification characters BLS”, page 326 .](#)

For vehicles with auxiliary heating

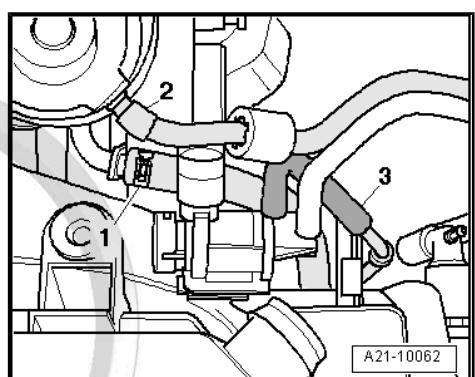
- Disconnect the fuel feed line.

For vehicles with engine code BLS

- Remove pre-exhaust pipe with diesel particle filter
[⇒ “1.1.2 Summary of components for engine with identification characters BLS”, page 382 .](#)
- Disconnect plug connection at changeover valve for radiator of exhaust gas recirculation -N345- -arrow-.

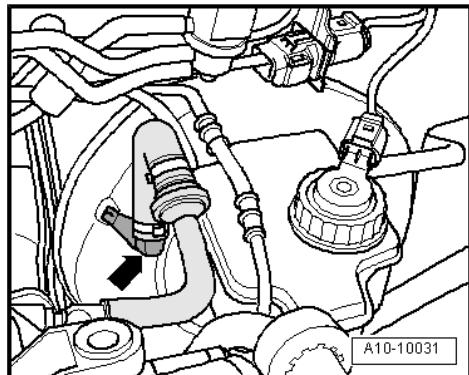


- Remove the vacuum hose -2- at the vacuum unit for charge pressure control.
- Disconnect vacuum hose -3- at the cable for vacuum setting element of the recirculation flap for exhaust gas recirculation.
- Disconnect vacuum line at the tandem pump.
- Slacken changeover valve for radiator of exhaust gas recirculation -N345- at bracket.
- Lay changeover valve for radiator of exhaust gas recirculation -N345- with connected hoses to the side.
- Detach oil intake hose -1- from exhaust turbocharger.
- Remove oil feed pipe.

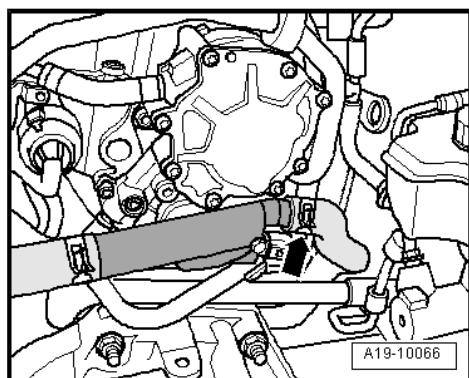




- Pull the vacuum hose -arrow- off the brake servo unit.



- Remove coolant hose -arrow- at coolant fitting.
- Disconnect the plug from the coolant temperature sender - G62- and detach the electrical wiring
- Unscrew the fixing screws for the oil dipstick guide tube, pull out the oil dipstick guide tube to the top out of the cylinder block.

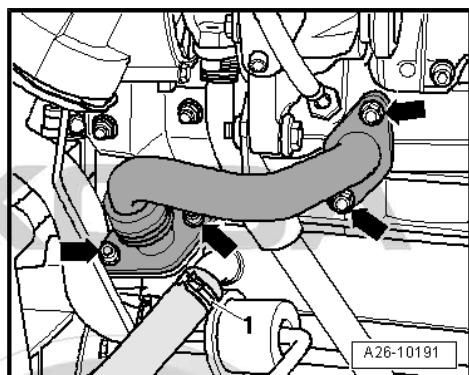


- Disconnect coolant hose -1- from radiator for exhaust gas recirculation.
- Remove connection pipe for exhaust gas recirculation radiator -arrows-.

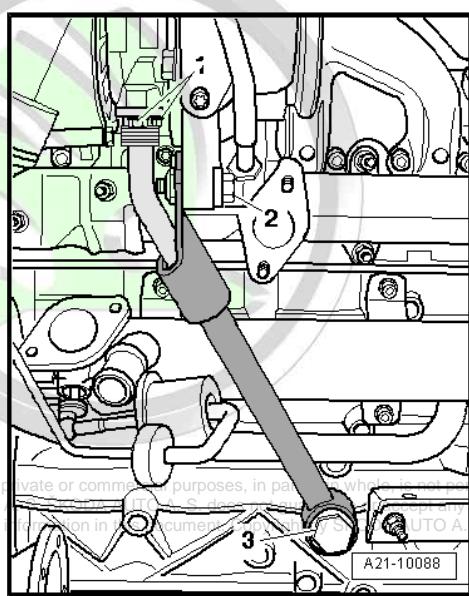
Vehicles with four-wheel drive

- Remove right flange shaft from angle gearbox ⇒ Gearbox; Rep. gr. 39 ⇒ Chapter "Replacing gasket ring for right flange shaft".

Continued for all vehicles



- Release screws -1-, screw -2- and the hollow screw -3-.
- Remove support for exhaust turbocharger with oil return line.



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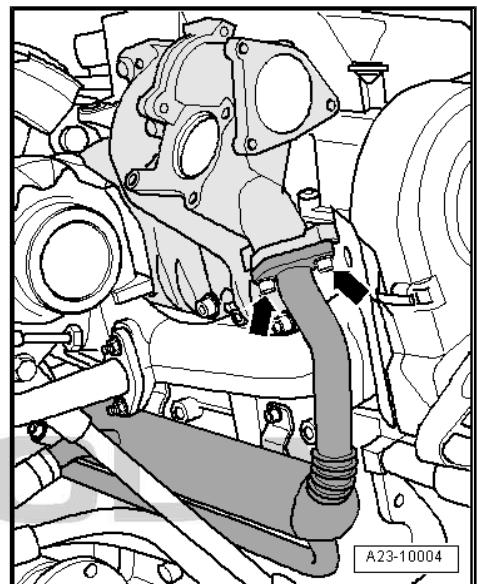
- Unscrew screws out of the flange between the radiator for exhaust gas recirculation and the intake manifold --.

For vehicles with auxiliary heating

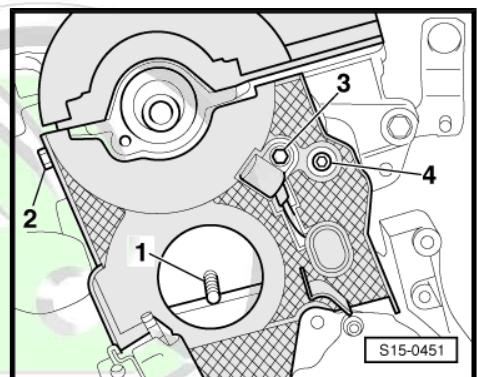
- Remove coolant pipe to auxiliary heating with connected coolant hoses at cylinder block.

Continued for all vehicles

- Remove toothed belt
 ⇒ [“1.5 Summary of components - toothed belt \(Superb II\)”, page 43](#).
- Remove toothed belt sprocket and hub of camshaft
 ⇒ [“2.3 Replacing camshaft gasket ring”, page 150](#).

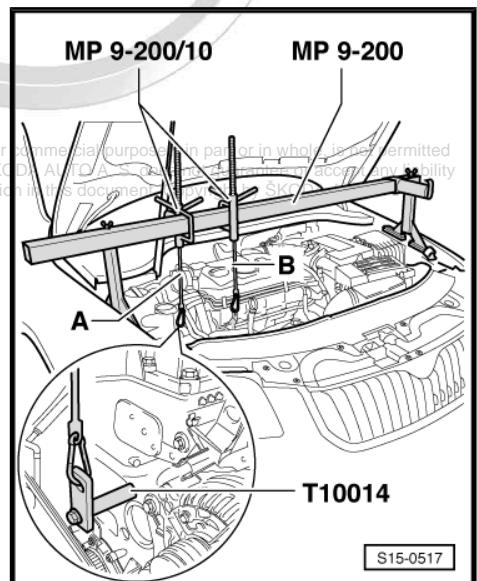


- Remove timing belt tensioning pulley.
- Screw out screw -3- and remove Hall sender -G40- from cylinder head.
- Disconnect all remaining plug connections at cylinder head and lay aside the electrical lines.
- Separate all remaining coolant, charge air and vacuum hoses and pipes from the cylinder.
- Release screws -2...4-.



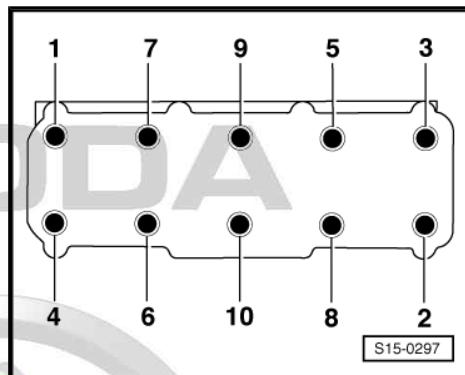
- Screw the bracket -T10014- into the threaded hole above the coolant pump. Tighten screw for bracket to 20 Nm.
- Support the engine and carefully raise with spindle -A- and through this release the spindle -B-.
- Remove spindle -B-.
- Remove cylinder head cover
 ⇒ [“1.2 Removing and installing cylinder head cover \(Octavia II, Superb II\)”, page 116](#).

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- Follow the specified order for loosening cylinder head bolts.
- Slightly raise the cylinder head with lifting device - MP9-201- and workshop crane - VAS 6100- and laterally remove from the engine next to the toothed belt guard.
- Place it down on a soft surface with the sealing surface to the top.



1.4.2 Install



Note

- ◆ Carefully remove residual sealant from the cylinder head and cylinder block. Make sure this does not cause any extended scoring or scratching.
- ◆ There must not be any oil or coolant present in the blind holes for the cylinder head bolts.
- ◆ Replace cylinder head bolts.
- ◆ When undertaking assembly replace self-locking nuts and screws as well as gasket rings and gaskets which have been tightened to a torquing angle.
- ◆ Remove the new cylinder head gasket from its wrapping immediately before fitting.
- ◆ Treat the seal with the utmost care. Damage to the silicone layer and in the area of the bead results in leakages.
- ◆ When installing an exchange cylinder head with the camshaft installed, it is necessary to oil the contact surfaces between the bucket tappet and the cam track after installing the cylinder head.
- ◆ The plastic base for protecting the open valves should only be removed immediately before attaching the cylinder head.
- ◆ Secure all hose connections with corresponding hose clips.

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WARNING

Wear protective gloves when working with sealant and grease remover!

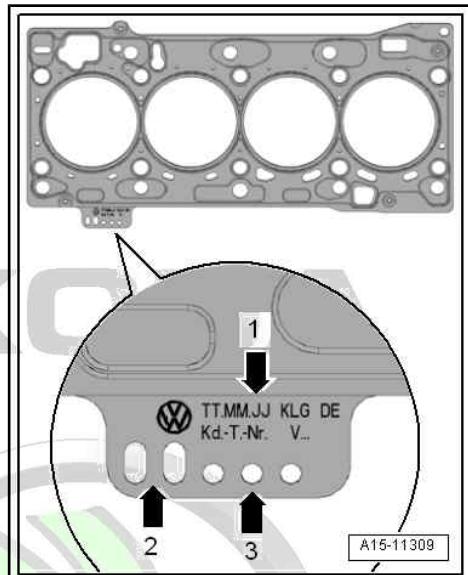
- Make sure that when cleaning the cylinder head and cylinder block no foreign bodies can get into the cylinder or into the oil and coolant galleries.
- Carefully remove old sealant residue from the cylinder head and cylinder block using a chemical sealant remover.
- Before fitting the cylinder head rotate the crankshaft so that all the pistons are almost evenly at TDC for cylinder 1.



- Pay attention to the identification of the cylinder head seal.
- ◆ Part number = arrow -1-
- ◆ Control code = arrow -2- (ignore)
- ◆ Bores = arrow -3-

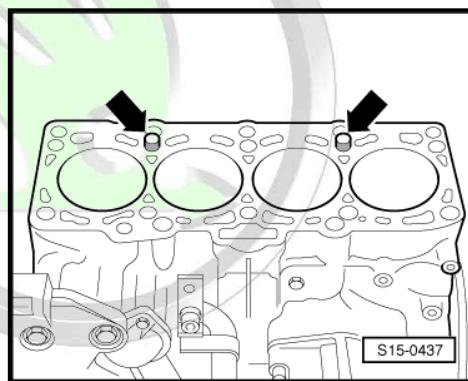
Note

- ◆ If the cylinder head gasket or cylinder head were replaced, install a new cylinder head gasket with the same identification marking.
- ◆ If parts of the crankshaft drive were replaced, then the new cylinder head gasket must be redefined by measuring the protrusion of the piston in TDC.



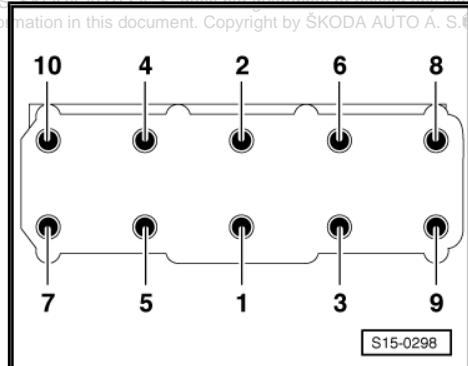
- Fit on cylinder head gasket.

- Pay attention to dowel sleeves -- in cylinder block.
- Observe the installed position of the cylinder head gasket, the marking "above" or the part number must point to the cylinder head.
- Insert the cylinder head.

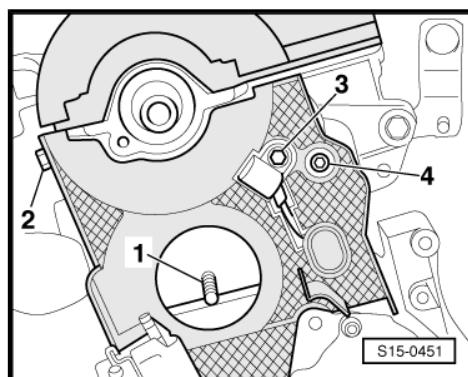


- Insert cylinder head bolts and tighten by hand.
- Tighten the cylinder head in 4 stages in the indicated tightening sequence:

Stage	Tighten
I	- Pre-tighten with the torque wrench to 35 Nm.
II	- Pre-tighten with the torque wrench to 60 Nm.
III	- Tighten further 90° with a rigid wrench.
IV	- Tighten further 90° with a rigid wrench.

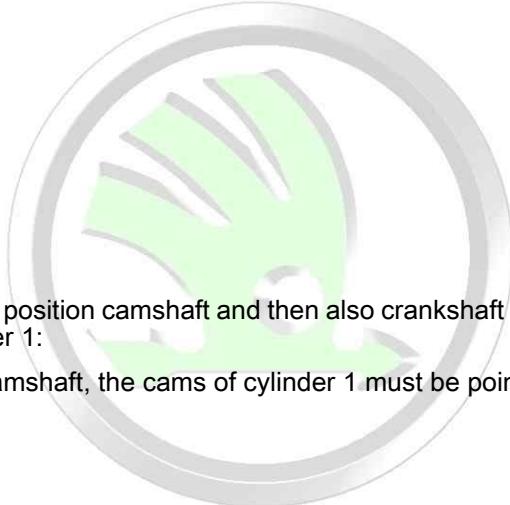


- Screw lifting eye of engine onto the front cylinder head.
- Insert screws -2 ... 4- with spread on locking agent -D 000 600 A2- and tighten to 10 Nm.
- Install Hall sender -G40-, insert screws -3- with spread on locking agent -D 000 600 A2- and tighten to 10 Nm.

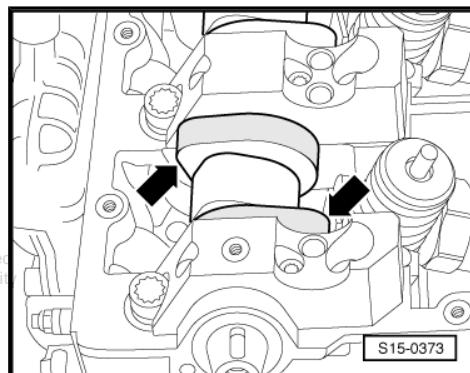
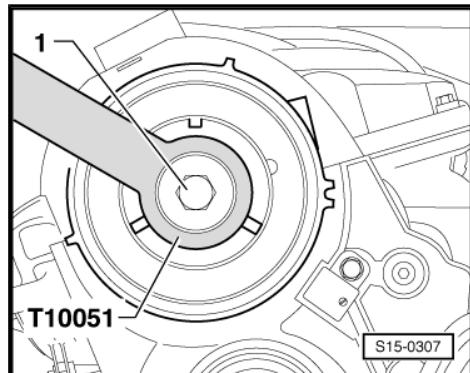




- Position hub onto camshaft.
- Tighten screw -1- to 100 Nm, use counterholder -T10051- to hold.



- First of all position camshaft and then also crankshaft on TDC for cylinder 1:
- For the camshaft, the cams of cylinder 1 must be pointing up evenly --.

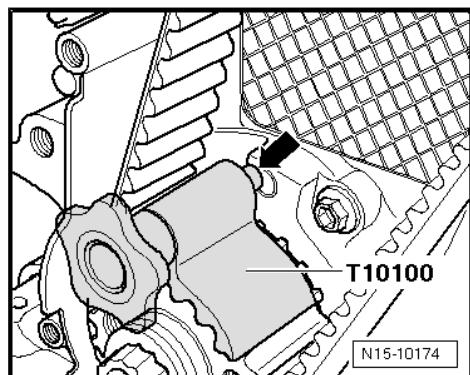


- ... and the crankshaft toothed belt sprocket must be interlocked with the crankshaft arrester -T10100- .



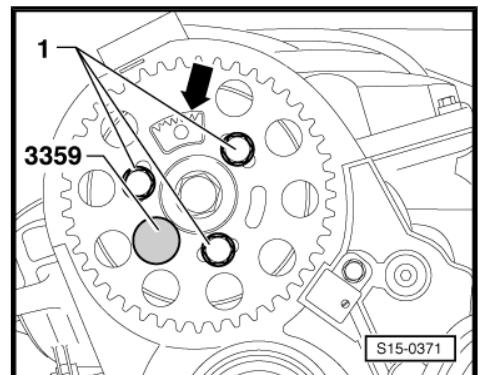
Note

The crankshaft arrester can only be fitted onto the toothed belt sprocket from the front side of the serration.





- Push camshaft sprocket onto the hub.
- The tooth segment -arrow- of the camshaft sprocket must be at the top.
- Slightly screw in plug -1-.
- Lock hub with locking pin, e.g. -3359- .
- install (set the timing)
 ⇒ “[1.5 Summary of components - toothed belt \(Superb II\)](#)”, page 43 .
- Install cylinder head cover
 ⇒ “[1.2 Removing and installing cylinder head cover \(Octavia II, Superb II\)](#)”, page 116 .



Installation is carried out in the reverse order. When installing, note the following:

- Install exhaust system and align free of stress
 ⇒ “[1.1 Fitting exhaust system free of stress \(Superb II\)](#)”, page 408 .
- Checking the oil level ⇒ Maintenance ; Booklet Superb II .



Note

Change contaminated engine oil ⇒ Maintenance ; Booklet Superb II .

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- Top up with coolant, if necessary replace
 ⇒ “[1.6 Drain and fill coolant \(Octavia II, Superb II\)](#)”, page 205 .

1.5 Removing and installing cylinder head (Octavia II)

Special tools and workshop equipment required

- ◆ Supporting device - T30099-
- ◆ Surface - T30099/1-
- ◆ Hook - MP9-200/10 (10-222A/10)-
- ◆ Workshop crane
- ◆ Lifting device - MP9-201 (2024 A)-
- ◆ Catch pan , e.g. -VAS 6208-
- ◆ Pliers for spring strap clamps
- ◆ Support - T10014-
- ◆ Counterholder - T10051-
- ◆ Extractor - T10052-
- ◆ Rig pin - 3359- or -MP1-301-
- ◆ Two-hole nut turner - T10020-
- ◆ Crankshaft arrester - T10050- or crankshaft arrester - T10100-
- ◆ Locking pin - T10060A-
- ◆ Sealant remover gasket stripper (bearing code GST, bearing article no. R 34402), manufacturer Retech s.r.o.
- ◆ Protective goggles and gloves



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1.5.1 Removing

Requirements

- Engine temperature should not exceed 35 °C, because the cylinder head could be twisted when slackening the screws.
- The pistons must not be in TDC.
- Switch off ignition and pull out ignition key.
- Remove engine cover
[⇒ "1.1 Removing \(Octavia II, Superb II\)", page 9](#) .
- Remove air filter:
- ◆ Engine identification characters BJB, BKC, BXE
[⇒ "2.6.1 Summary of components for engine with engine identification characters BJB, BKC, BXE", page 327](#) .
- ◆ Engine identification characters BLS
[⇒ "2.6.2 Summary of components for engine with identification characters BLS", page 328](#) .
- Remove charge air pipes and charge air hoses
[⇒ "1.4 Summary of components - air filter \(Octavia II, Superb II\)", page 364](#) .
- Remove the middle sound dampening system ⇒ Body Work;
 Rep. gr. 50 .

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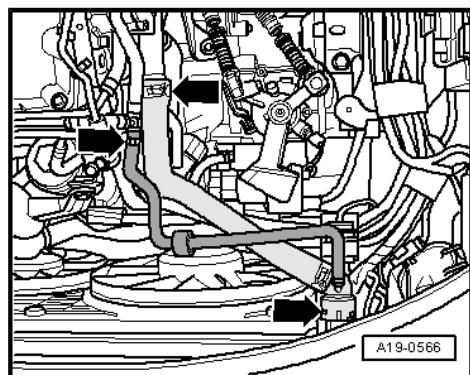


WARNING

Hot steam or hot coolant may escape when the compensation bottle is opened. Cover the cap with a cloth and open carefully.

- Drain coolant
[⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#) .
- Disconnect coolant hose between engine and radiator --.
- Use hand vacuum pump to extract the fuel at the return-flow hose of the tandem pump
[⇒ "2.12 Removing and installing the tandem pump", page 282](#) .

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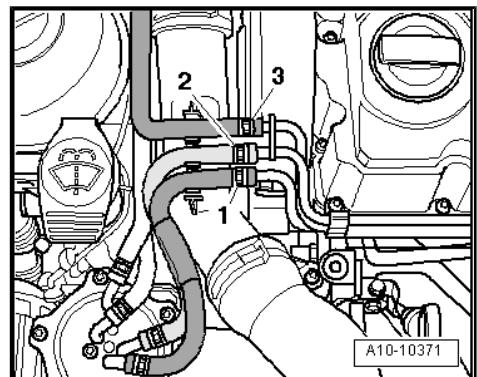




- Detach the fuel intake hose -2- and the fuel return hose -1- from the fuel lines.
- Detach coolant hose -3-.

For engine with identification characters BJB, BKC, BXE

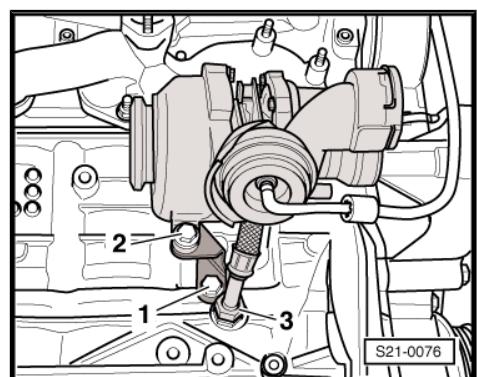
- Remove pre-exhaust pipe:
 - ◆ for vehicles with front drive
 ⇒ [“1.2.1 Summary of components for engine with identification characters BJB, BKC, BXE on vehicles with front-wheel drive”, page 384](#).
 - ◆ for vehicles with four-wheel drive
 ⇒ [“1.2.3 Summary of components for engine with identification characters BKC, BXE on vehicles with four-wheel drive”, page 387](#).
- Release screws -1- and -2- and remove bracket for turbocharger.



Note

Collect any engine oil which flows out with a cloth.

- Remove the oil return line -3- at the cylinder block.
- Unscrew oil feed line from turbocharger, exhaust manifold and from coolant pipe and lay it to one side.



For engine with engine code BLS

- Remove the air guide pipe between the exhaust turbocharger and the charge air cooler
 ⇒ [“2.6.2 Summary of components for engine with identification characters BLS”, page 328](#).

For vehicles with auxiliary heating

- Disconnect the fuel feed line.

For engine with engine code BLS

- Remove pre-exhaust pipe with diesel particle filter:
 - ◆ for vehicles with front drive
 ⇒ [“1.2.2 Summary of components for engine with identification characters BLS on vehicles with front-wheel drive”, page 385](#).
 - ◆ for vehicles with four-wheel drive
 ⇒ [“1.2.4 Summary of components for engine with identification characters BLS on vehicles with four-wheel drive”, page 388](#). by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by ŠKODA AUTO A. S. ŠKODA AUTO A. S. does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by ŠKODA AUTO A. S.

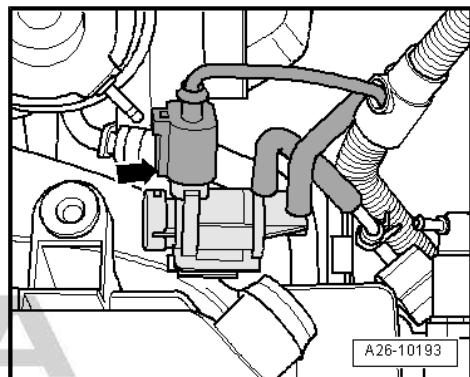
Note

On vehicles with four-wheel drive the pre-exhaust pipe with diesel particle filter can remain in the engine compartment and the angle gearbox must not be removed.

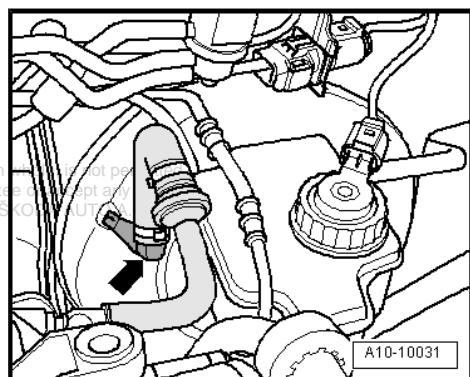
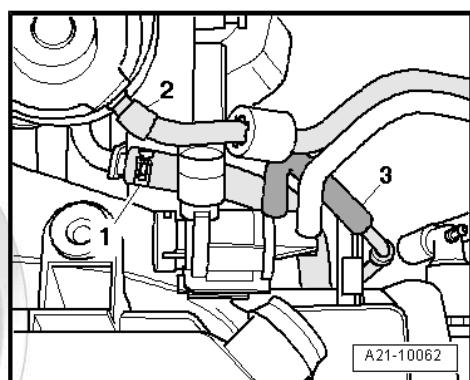
Continued for all vehicles



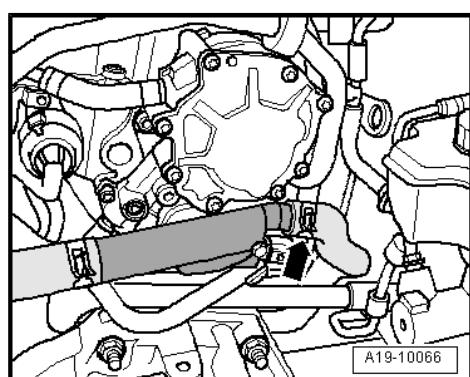
- Disconnect plug connection at changeover valve for radiator of exhaust gas recirculation -N345- -arrow-.



- Detach vacuum hose -2- from vacuum setting element for charge pressure control.
- Disconnect vacuum hose -3- at the cable for vacuum setting element of the recirculation flap for exhaust gas recirculation.
- Disconnect vacuum line at the tandem pump.
- Slacken changeover valve for radiator of exhaust gas recirculation -N345- at bracket.
- Lay changeover valve for radiator of exhaust gas recirculation -N345- with connected hoses to the side.
- Detach oil intake hose -1- from exhaust turbocharger.
- Remove oil feed pipe.
- Pull the vacuum hose -arrow- off the brake servo unit.



- Remove coolant hose -arrow- at coolant connection fitting.
- Disconnect the plug from the coolant temperature sender - G62- and detach the electrical wiring
- Unscrew the fixing screws for the oil dipstick guide tube, pull out the oil dipstick guide tube to the top out of the cylinder block.

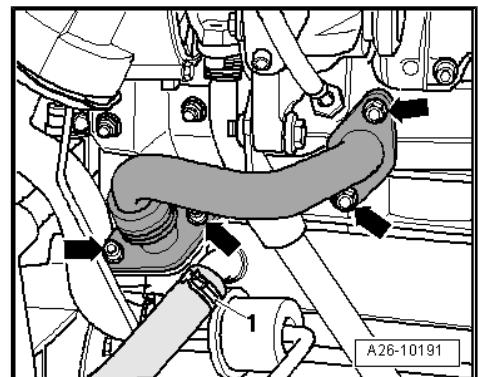




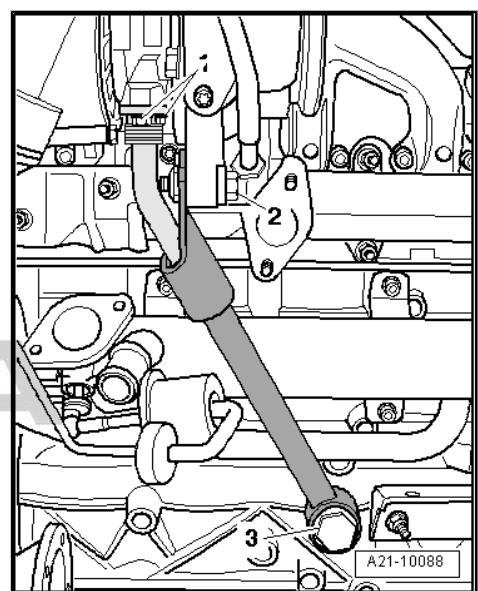
- Disconnect coolant hose -1- at exhaust gas recirculation radiator.
- Remove connection pipe for exhaust gas recirculation radiator --.

Vehicles with four-wheel drive with engines with identification characters BLS

- Remove right flange shaft from angle gearbox ⇒ Gearbox; Rep. gr. 39 ⇒ Chapter "Replacing gasket ring for right flange shaft".



- Release screws -1-, screw -2- and the hollow screw -3-.
- Remove support for exhaust turbocharger with oil return line.



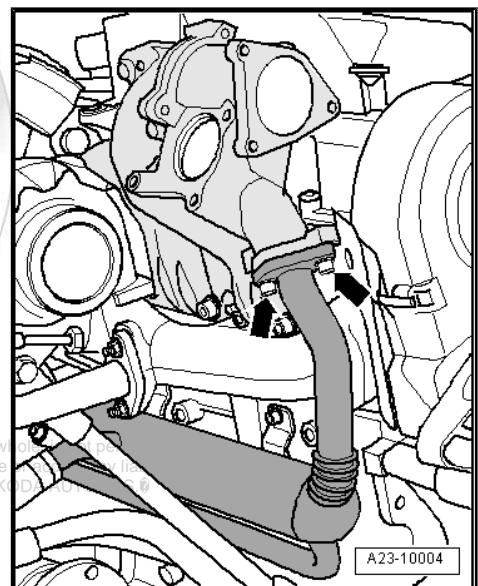
- Unscrew screws out of the flange between the radiator for exhaust gas recirculation and the intake manifold --.

For vehicles with auxiliary heating

- Remove exhaust pipe of auxiliary heating (only for vehicles with extended exhaust pipe) ⇒ Heating, Air Conditioning; Rep. gr. 82 .
- Remove coolant pipe to auxiliary heating with connected coolant hoses at cylinder block.

Continued for all vehicles

- Remove toothed belt
⇒ ["1.7 Summary of components - toothed belt \(Octavia II\)", page 53](#) .
- Remove toothed belt sprocket and hub of camshaft
⇒ ["2.3 Replacing camshaft gasket ring", page 150](#) .





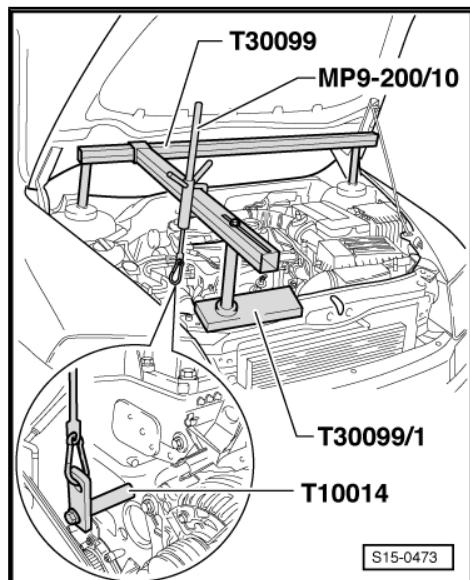
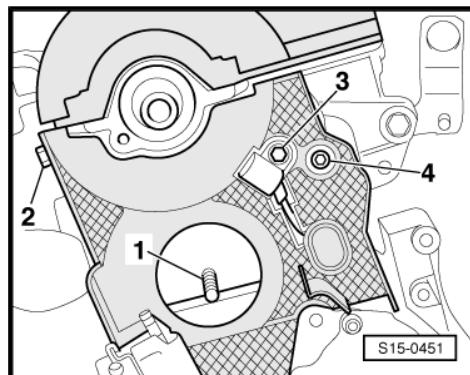
- Remove timing belt tensioning pulley.
- Screw out screw -3- and remove Hall sender -G40- from cylinder head.
- Disconnect all remaining plug connections at cylinder head and lay aside the electrical lines.
- Separate all remaining coolant, charge air and vacuum hoses and pipes from the cylinder.
- Release screws -2...4-.

**Except vehicles manufactured during the period of time from
05.05 to 05.07**

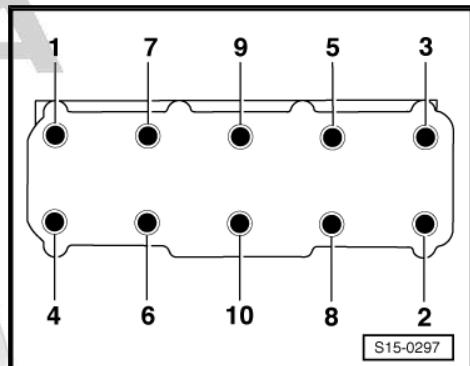
- Install -T10014- bracket. Tighten screw for bracket to 20 Nm.
- Support engine from underneath.
- Offset hook -MP9-200/10 (10-222A/10)- for supporting device -T30099- from the right lifting eye of the engine into the lug of the bracket -T10014- and preload engine via the spindle, do not lift.

Continued for all vehicles

- Remove cylinder head cover
 ⇒ [“1.2 Removing and installing cylinder head cover \(Octavia II, Superb II\)”, page 116](#).



- Follow the specified order for loosening cylinder head bolts.
- Carefully raise cylinder head with lifting device -MP9-201 (2024 A)- and workshop crane -VAS 6100- .





1.5.2 Install



Note

- ◆ Carefully remove residual sealant from the cylinder head and cylinder block. Make sure this does not cause any extended scoring or scratching.
- ◆ There must not be any oil or coolant present in the blind holes for the cylinder head bolts.
- ◆ Replace cylinder head bolts.
- ◆ When undertaking assembly replace self-locking nuts and screws as well as gasket rings and gaskets which have been tightened to a torquing angle.
- ◆ Remove the new cylinder head gasket from its wrapping immediately before fitting.
- ◆ Treat the seal with the utmost care. Damage to the silicone layer and in the area of the bead results in leakages.
- ◆ When installing an exchange cylinder head with the camshaft installed, it is necessary to oil the contact surfaces between the bucket tappet and the cam track after installing the cylinder head.
- ◆ The plastic base for protecting the open valves should only be removed immediately before attaching the cylinder head.
- ◆ Secure all hose connections with corresponding hose clips.



WARNING

Wear protective gloves when working with sealant and grease remover!

- Make sure that when cleaning the cylinder head and cylinder block no foreign bodies can get into the cylinder or into the oil and coolant galleries.
- Carefully remove old sealant residue from the cylinder head and cylinder block using a chemical sealant remover.
- Before fitting the cylinder head rotate the crankshaft so that all the pistons are almost evenly at the same height.

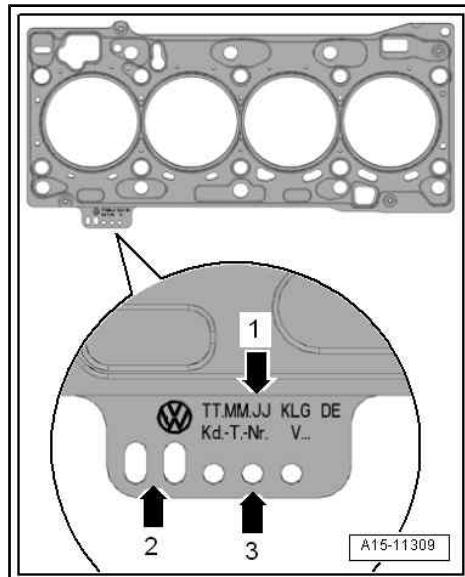
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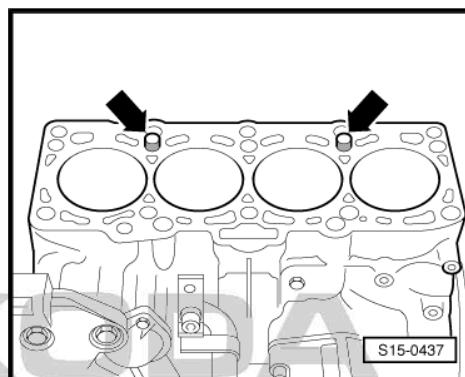
- Pay attention to the identification of the cylinder head seal.
- ◆ Part number = arrow -1-
- ◆ Control code = arrow -2- (ignore)
- ◆ Bores = arrow -3-

Note

- ◆ If the cylinder head gasket or cylinder head were replaced, install a new cylinder head gasket with the same identification marking.
- ◆ If parts of the crankshaft drive were replaced, then the new cylinder head gasket must be redefined by measuring the protrusion of the piston in TDC.

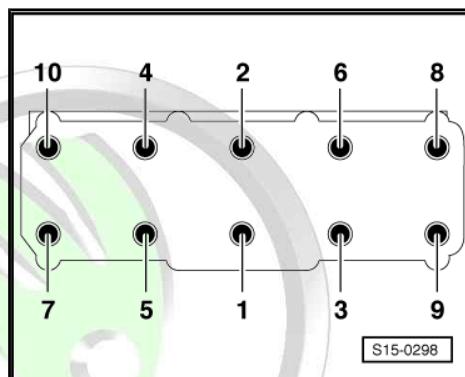


- Fit on cylinder head gasket.
- Pay attention to dowel sleeves -- in cylinder block.
- Observe the installed position of the cylinder head gasket, the marking "above" or the part number must point to the cylinder head.
- Insert the cylinder head.



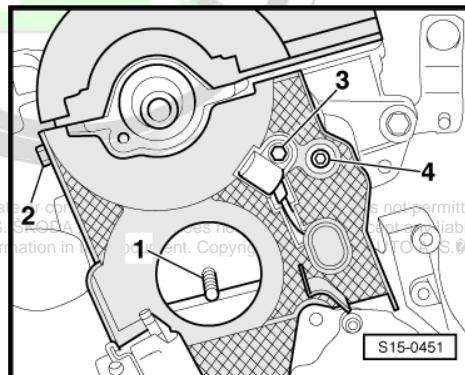
- Insert cylinder head bolts and tighten by hand.
- Tighten the cylinder head in 4 stages in the indicated tightening sequence:

Stage	Tighten
I	- Pre-tighten with the torque wrench to 35 Nm.
II	- Pre-tighten with the torque wrench to 60 Nm.
III	- Tighten further 90° with a rigid wrench.
IV	- Tighten further 90° with a rigid wrench.



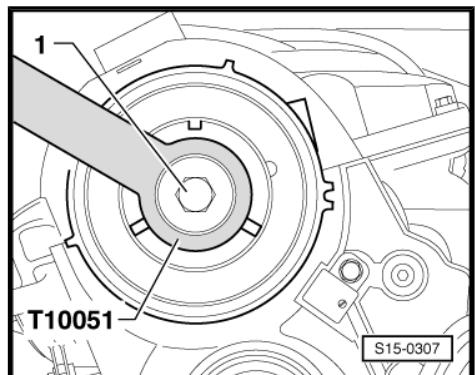
- Screw lifting eye of engine onto the front cylinder head.
- Insert screws -2 ... 4- with spread on locking agent -D 000 600 A2- and tighten to 10 Nm.
- Install Hall sender -G40-, insert screws -3- with spread on locking agent -D 000 600 A2- and tighten to 10 Nm.
- Screw in the pin screw -1- and tighten to 15 Nm.

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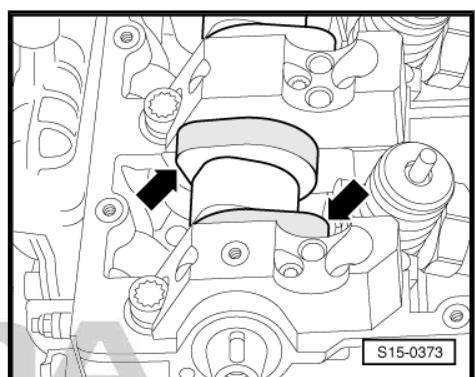




- Position hub onto camshaft.
- Tighten screw -1- to 100 Nm, use counterholder -T10051- to hold.



- First of all position camshaft and then also crankshaft on TDC for cylinder 1:
- For the camshaft, the cams of cylinder 1 must be pointing up evenly --.

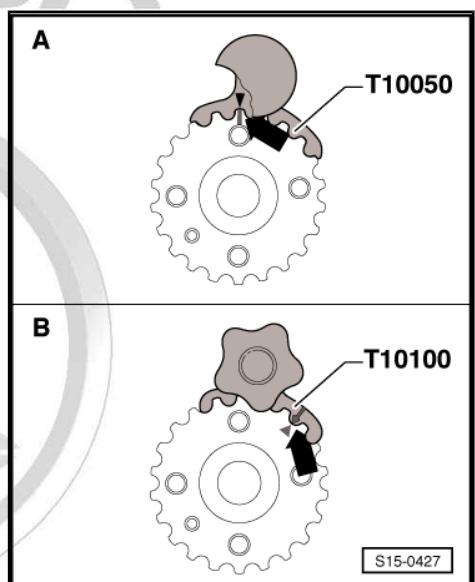
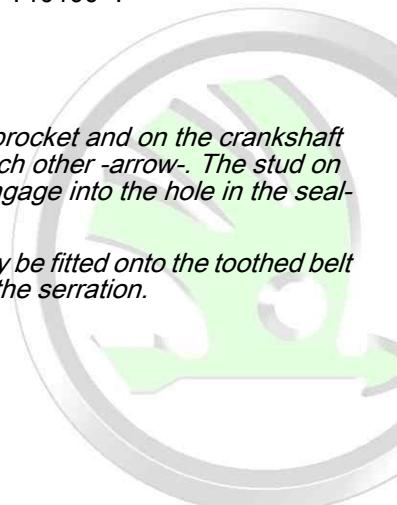


- ... and depending on the version, the crankshaft toothed belt sprocket must be interlocked with the crankshaft arrester - T10050- or crankshaft arrester -T10100- .



Note

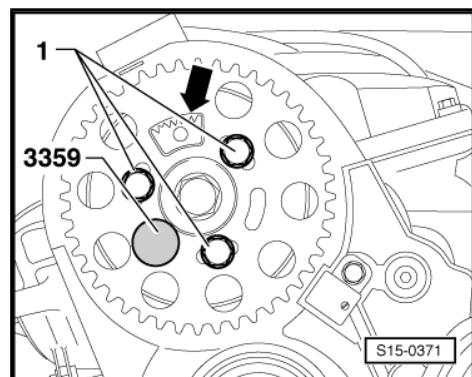
- ◆ *Markings on the toothed belt sprocket and on the crankshaft arrester must be in line with each other -arrow-. The stud on the crankshaft arrester must engage into the hole in the sealing flange.*
- ◆ *The crankshaft arrester can only be fitted onto the toothed belt sprocket from the front side of the serration.*



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- Push camshaft sprocket onto the hub.
- The tooth segment -arrow- of the camshaft sprocket must be at the top.
- Slightly screw in plug -1-.
- Lock hub with locking pin, e.g. -3359- .
- install (set the timing)
⇒ "1.7 Summary of components - toothed belt (Octavia II)", page 53 .
- Install cylinder head cover
⇒ "1.2 Removing and installing cylinder head cover (Octavia II, Superb II)", page 116 .



Installation is carried out in the reverse order. When installing, note the following:

- Install exhaust system and align free of stress
⇒ "1.12 Aligning exhaust system free of stress (Octavia II)", page 409 .
- Checking the oil level ⇒ Maintenance ; Booklet Octavia II .



Note

Change contaminated engine oil ⇒ Maintenance ; Booklet Octavia II .

- Top up with coolant, if necessary replace
⇒ "1.6 Drain and fill coolant (Octavia II, Superb II)", page 205 .
- Then query and erase event memory of engine control unit
⇒ Vehicle diagnostic tester.

1.6 Removing and installing cylinder head (Fabia II, Roomster)

Special tools and workshop equipment required

- ◆ Supporting device - MP9-200 (10-222A)-
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- ◆ Hook - MP9-200/10 (10-222A/10)-
- ◆ Support - T10014-
- ◆ Catch pan , e.g. -VAS 6208-
- ◆ Pliers for spring strap clamps
- ◆ Hand vacuum pump , e.g. -VAS 6213- or -V.A.G 1390-
- ◆ Sealant remover gasket stripper (bearing code GST, bearing article no. R 34402), manufacturer Retech s.r.o.
- ◆ Protective goggles and gloves

1.6.1 Removing

Requirements

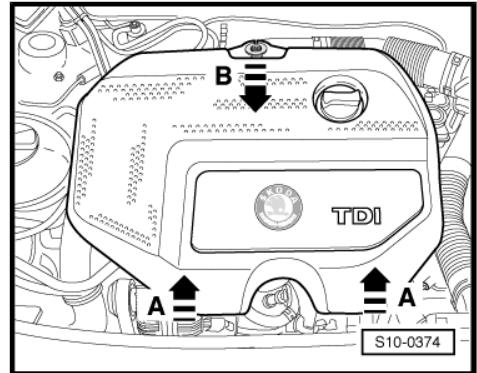
- Engine temperature should not exceed 35 °C, because the cylinder head could be twisted when slackening the screws.
- The pistons must not be in TDC.



WARNING

Observe measures when disconnecting the battery ⇒ Electrical System; Rep. gr. 27.

- Disconnect the earth strap from the battery with the ignition off.
- Lift the engine cover at the sides -arrows A- and pull out towards the front -arrow B-.
- Remove air filter with intake hose
⇒ “[1.6 Removing and installing air filter \(Fabia II, Roomster\)](#)”, page 367 .
- Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .
- Removing rear and bottom charge-air pipe
⇒ “[2.7 Removing and installing parts of the charge air cooler \(Fabia II, Roomster\)](#)”, page 328 .
- Unplug connector with glow plugs.



For engines with identification characters AXR, BSW

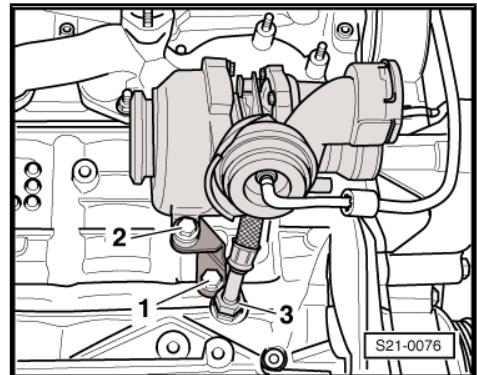
- Remove pre-exhaust pipe with catalytic converter
⇒ “[1.3.1 Summary of components for engine with identification characters BSW](#)”, page 390 . SKODA AUTO A. S. does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by SKODA AUTO A. S.®
- Release screws -1- and -2- and remove bracket for turbocharger.
- Remove the vacuum hose from the vacuum unit for charge pressure control.



Note

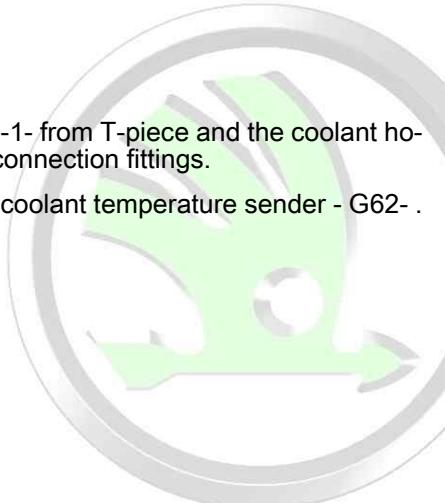
Collect any engine oil which flows out with a cloth.

- Unscrew the oil return line -3- at the cylinder block.
- Unscrew oil feed line from exhaust turbocharger and from exhaust manifold and lay it to one side.
- Drain coolant
⇒ “[1.7 Draining and filling coolant \(Fabia II, Roomster\)](#)”, page 208 .
- Unscrew the inlet connection from the intake manifold and lay to the side with connected hoses.
- Use hand vacuum pump and bleeder tank to extract the fuel from the return-flow hose of the tandem pump
⇒ “[2.12 Removing and installing the tandem pump](#)”, page 282 .

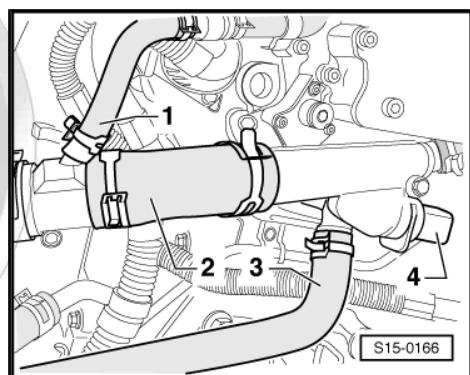
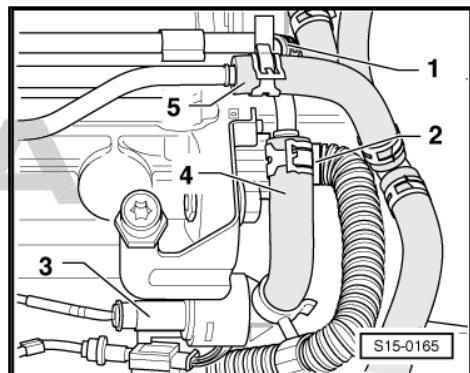




- Remove fuel hoses -1- and -4-.
- Detach coolant hose -5-.
- Remove central plug connection -2- for pump-nozzle units.
- Unplug connector -3- from fuel temperature sender - G81- .
- Unscrew the oil feed line from the oil filter holder, the exhaust turbocharger and the brackets.



- Disconnect coolant hose -1- from T-piece and the coolant hoses -2- and -3- from the connection fittings.
- Disconnect plug -4- from coolant temperature sender - G62- .



- Remove the coolant hose -3- from the support -4-.
- Pull off vacuum hose -6- from tandem pump -5-.

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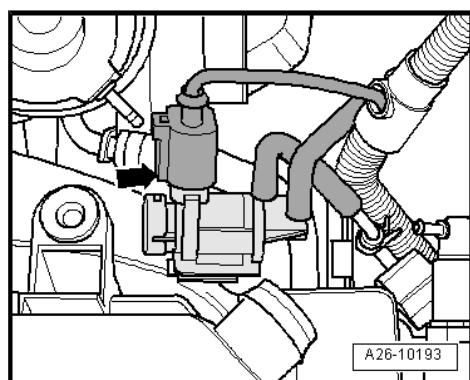
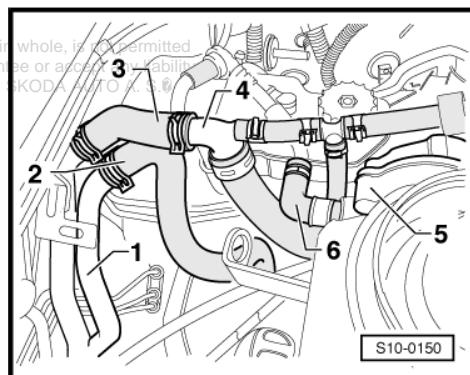
For engines with identification characters BLS



Note

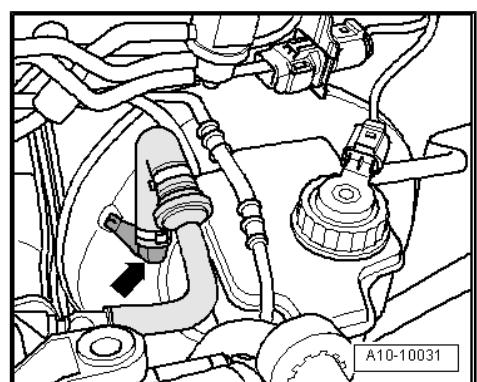
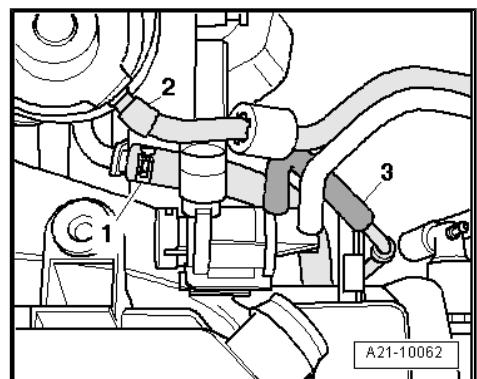
Only remove the retaining clip and the pre-exhaust pipe with diesel particle filter from the exhaust gas turbocharger.

- Remove the pre-exhaust pipe with diesel particle filter from the exhaust gas turbocharger:
- ◆ Fabia II
[⇒ "1.3.2 Summary of components for engine with identification characters BLS", page 391](#) .
- ◆ Roomster
[⇒ "1.4.2 Summary of components for engine with identification characters BLS", page 394](#) .
- Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
- Disconnect plug connection from changeover valve for radiator of exhaust gas recirculation - N345- -arrow-.



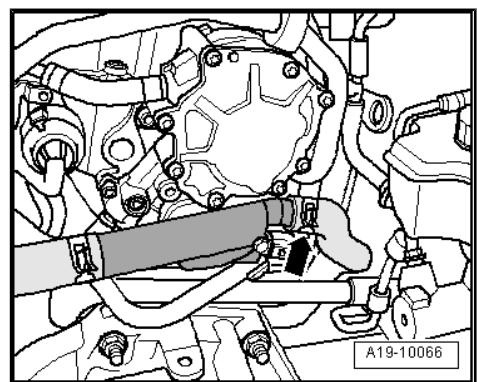
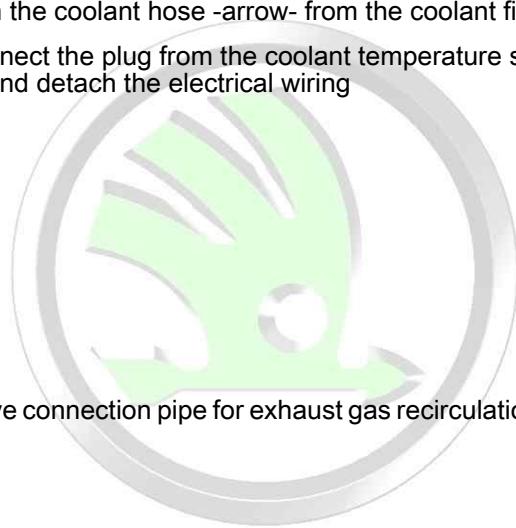


- Detach vacuum hose -2- from vacuum setting element for charge pressure control.
- Disconnect vacuum hose -3- at the cable for vacuum setting element of the recirculation flap for exhaust gas recirculation.
- Separate the vacuum line from the tandem pump.
- Slacken changeover valve for radiator of exhaust gas recirculation - N345- from bracket.
- Lay changeover valve for radiator of exhaust gas recirculation - N345- with connected hoses to the side.
- Detach oil intake hose -1- from exhaust turbocharger.
- Remove oil feed pipe.
- Detach the vacuum hose -arrow- from the brake servo unit.



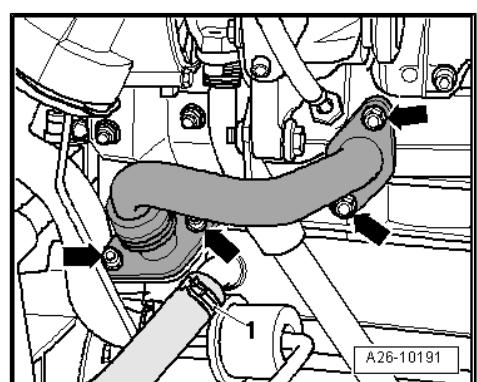
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- Detach the coolant hose -arrow- from the coolant fitting.
- Disconnect the plug from the coolant temperature sender - G62- and detach the electrical wiring



- Remove connection pipe for exhaust gas recirculation radiator --.

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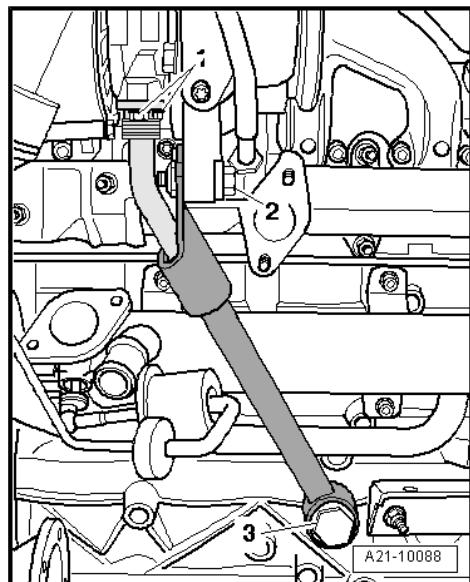




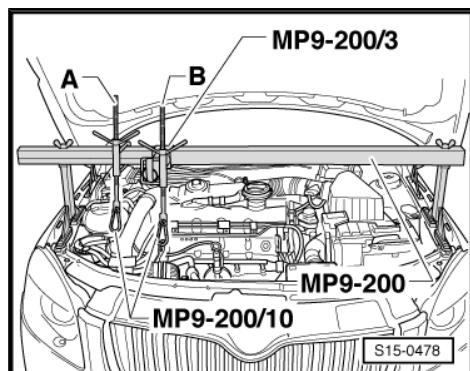
- Release screws -1-, screw -2- and the hollow screw -3-.
- Remove support for exhaust turbocharger with oil return line.

Continued for all vehicles

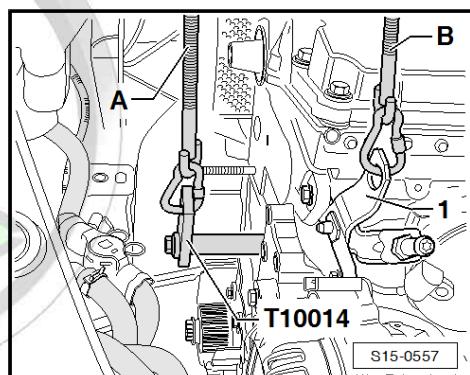
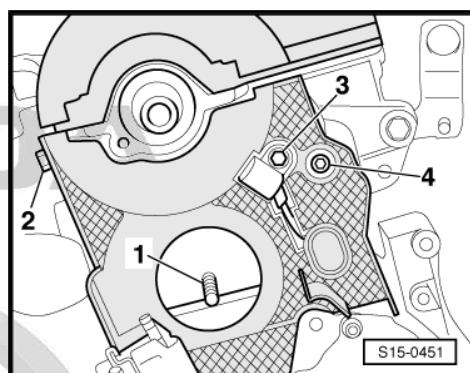
- Remove coolant pump
[⇒ "1.8 Removing and installing coolant pump", page 210 .](#)



- Install supporting device -MP9-200 (10-222A)- with positioned spindles as shown and support the engine with spindle -B-.
- Carefully raise the engine with spindle -B-.
- Remove toothed belt
[⇒ "1.4 Removing and installing V-ribbed belt \(Fabia II, Roomster\)", page 41 .](#)
- Remove toothed belt sprocket and hub of camshaft
[⇒ "2.3 Replacing camshaft gasket ring", page 150 .](#)
- Remove timing belt tensioning pulley.
- Unscrew screw -3- and remove the Hall sender - G40- from cylinder head.
- Screw out screws -2- and -4-.



- Screw bracket - T10014- into the threaded holes in the area of the coolant pump in the cylinder block. Tightening torque: 20 Nm.
- Support the engine and carefully raise with spindle -A- and through this release the spindle -B-.
- Remove spindle -B-.
- Remove cylinder head cover
[⇒ "1.3 Removing and installing cylinder head cover \(Fabia II, Roomster\)", page 118 .](#)

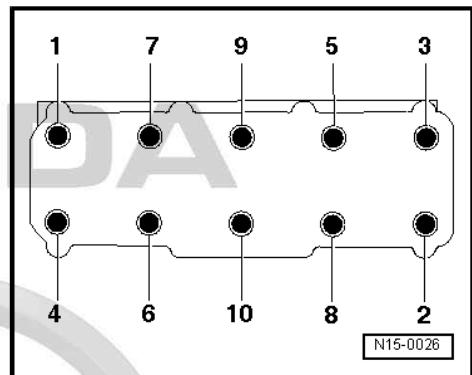




- Slacken cylinder head bolts in the specified order and unscrew.
- Raise cylinder head and remove sideways past the toothed belt guard.

Note

The assistance of a second mechanic is required to remove and install the cylinder head.



1.6.2 Install

Note

- ◆ Always replace the cylinder head bolts.
- ◆ There must not be any oil or coolant present in the holes for the cylinder head bolts.
- ◆ Remove the new cylinder head gasket from its wrapping immediately before fitting.
- ◆ Treat the new seal with the utmost care. Damage to the silicone layer and in the area of the bead results in leakages.
- ◆ Make sure that when cleaning the cylinder head and cylinder block no foreign bodies can get into the cylinder or into the oil or coolant galleries.

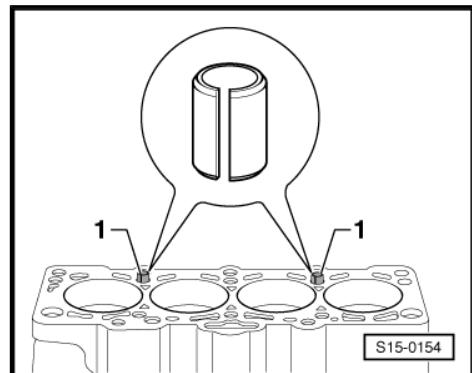
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WARNING

Wear protective gloves when working with sealant and grease remover!

- Carefully remove old sealant residue from the cylinder head and cylinder block using a chemical sealant remover.
- Before fitting the cylinder head, turn crankshaft to TDC marking.
- Turn crankshaft back against the running direction of the engine until all pistons are almost evenly at TDC.
- Check whether the both dowel sleeves -1- that guide the cylinder head are located in the cylinder block, if necessary insert.





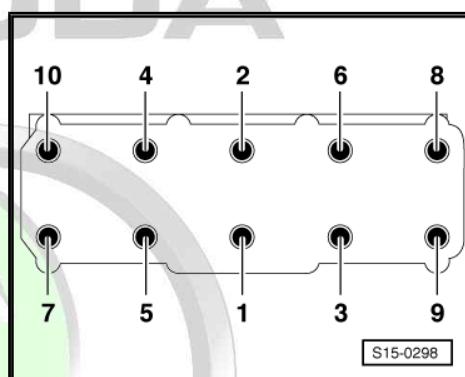
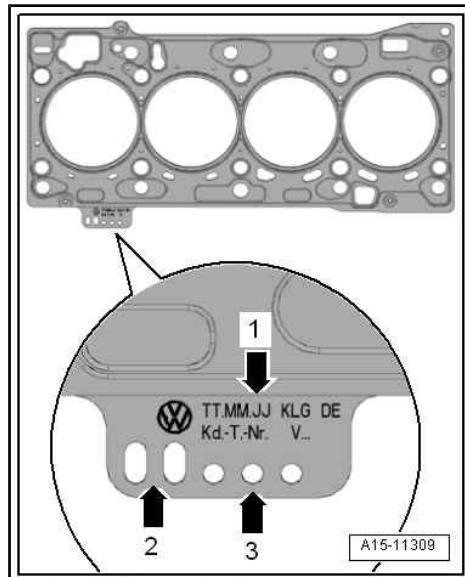
- Pay attention to the identification of the cylinder head seal.
- ◆ Part number = arrow -1-
- ◆ Control code = arrow -2- (ignore)
- ◆ Bores = arrow -3-

Note

- ◆ If the cylinder head gasket or cylinder head were replaced, install a new cylinder head gasket with the same identification marking.
- ◆ If parts of the crankshaft drive were replaced, then the new cylinder head gasket must be redefined by measuring the protrusion of the piston in TDC.

- Fit on cylinder head gasket.
- Fit on cylinder head, insert all the cylinder head bolts and tighten by hand.
- Tighten screws in four stages in the following order:

Stage	Tighten
I	- Pre-tighten with the torque wrench to 35 Nm.
II	- Pre-tighten with the torque wrench to 60 Nm.
III	- Tighten further 90° with a rigid wrench.
IV	- Tighten further 90° with a rigid wrench.



- After securing the cylinder head or the camshaft sprocket, turn the camshaft in such a way that both cams for cylinder 1 point upwards evenly. Set the crankshaft in the direction of rotation of the engine to the TDC before attaching the timing belt
⇒ "1.10 Removing and installing toothed belt (Fabia II, Roomster)", page 67 .
- After installing the cylinder head, fill tandem pump and cylinder head with fuel using a hand vacuum pump and ventilation reservoir
⇒ "2.12 Removing and installing the tandem pump", page 282 .

The further assembly is carried out in reverse order to disassembly.

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- Interrogate event memory and erase ⇒ Vehicle diagnostic tester.
- Checking the oil level:
⇒ Maintenance ; Booklet Fabia II .
- ⇒ Maintenance ; Booklet Roomster .

1.7 Testing compression pressure (Octavia II, Superb II)

For engine with identification characters BJB, BKC, BXE, BLS

Special tools and workshop equipment required

- ◆ Compression tester , e.g. -V.A.G 1763-
- ◆ Adapter , e.g. -V.A.G 1381/12-
- ◆ Flexible-head wrench e.g. -3220-



Test conditions

- Engine temperature, min. 30 °C

Test sequence

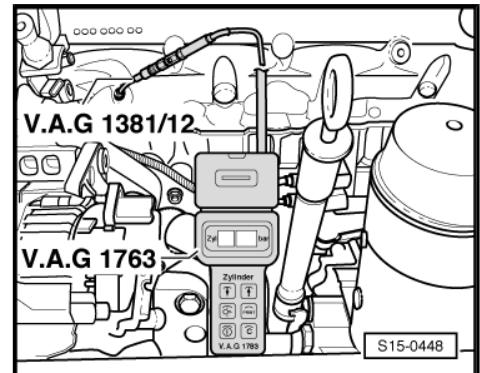
- Remove engine cover.
- Detach central plug connection for unit injectors and edge connector for glow plugs.
- Unscrew all glow plugs with flexible-head wrench .
- Screw the adapter (e.g. -V.A.G 1381/12-), in place of the glow plug into the relevant cylinder.
- Check compression pressure using the compression gauge (e.g. -V.A.G 1763-).



Note

Use of tester ⇒ Operating Instructions .

- The 2nd mechanic operates the starter until the tester no longer indicates a pressure rise.



Compression readings

New engine	Wear limit	Permissible difference between the cylinders
2.5...3.1 MPa	1.9 MPa	max. 0.5 MPa
25 ... 31 bar	19 bar	max. 5 bar

Work procedure after the compression pressure test

- Install glow plugs and tighten to 15 Nm.
- Connect central plug connection for unit injectors and edge connector for glow plugs.
- Then query and erase event memory of engine control unit
⇒ Vehicle diagnostic tester.

For engine with engine code BLS

The compression pressure is tested through the fault finding program of the vehicle diagnosis, measurement and information system - VAS 5051 A- under "Repair Group 15; Cylinder head/ valve gear; Particular System, Boundary conditions; Diagnostic Object: poor compression pressure ".

1.8 Testing compression pressure (Fabia II, Roomster)

For engine with engine identification characters AXR, BSW, BLS

- Engine oil temperature at least 30 °C.

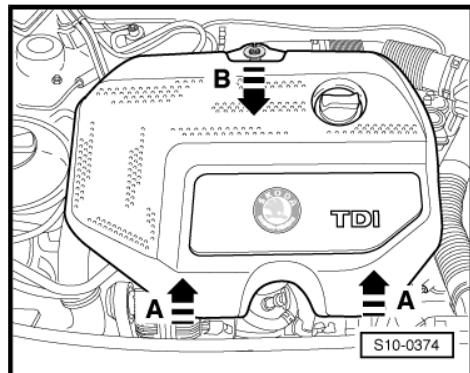
Special tools and workshop equipment required

- ♦ Compression tester , e.g. -V.A.G 1763-
- ♦ Adapter , e.g. -V.A.G 1381/12-
- ♦ Flexible-head wrench for glow plugs



Test sequence

- Lift the engine cover at the sides -arrows A- and pull out towards the front -arrow B-.
- Disconnect central plug connection for unit injectors.
- Remove all glow plugs with flexible-head wrench .



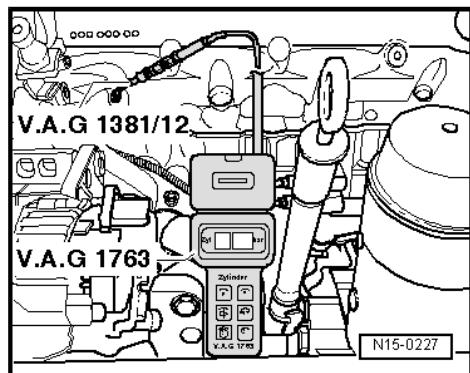
- Screw in adapter instead of the glow plugs.
- Check compression pressure using the compression tester.



Note

Use of tester ⇒ Operating Instructions .

- Operate starter until the tester no longer indicates a pressure rise.



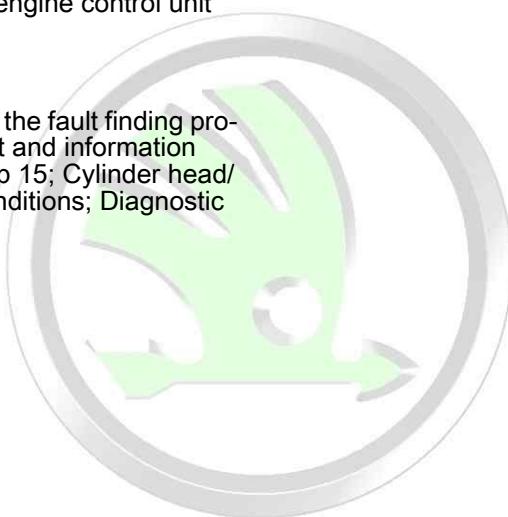
Compression readings

New engine	Wear limit	Permissible difference between the cylinders
2.5...3.1 MPa	1.9 MPa	max. 0.5 MPa
25 ... 31 bar	19 bar	max. 5 bar

- Install glow plugs and tighten to 15 Nm.
- Connect central plug connection for unit injectors and edge connector for glow plugs.
- Then query and erase event memory of engine control unit
⇒ Vehicle diagnostic tester.

For engine with engine code BLS

The compression pressure is tested through the fault finding program of the vehicle diagnosis, measurement and information system - VAS 5051 A- under "Repair Group 15; Cylinder head/ valve gear; Particular System, Boundary conditions; Diagnostic Object: poor compression pressure".



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2 Repairing Valve Gear

- ⇒ “2.1 Valve gear - Summary of components”, page 147
- ⇒ “2.2 Checking the axial play of the camshaft”, page 149
- ⇒ “2.3 Replacing camshaft gasket ring”, page 150
- ⇒ “2.4 Removing and installing camshaft (Superb II)”, page 152
- ⇒ “2.5 Removing and installing camshaft (Octavia II)”,
page 155
- ⇒ “2.6 Removing and installing camshaft (Fabia II, Roomster)”,
page 159
- ⇒ “2.7 Testing hydraulic bucket tappets”, page 162
- ⇒ “2.8 Replacing the valve stem seals on the installed cylinder
head”, page 163

2.1 Valve gear - Summary of components



Note

- ◆ After installing the camshaft, the engine must not be started for about 30 minutes. The hydraulic bucket tappets must settle (otherwise valves would strike the pistons).
- ◆ After carrying out work on the valve gear, carefully crank engine at least 2 revolutions to ensure that no valve touches the piston when the engine is started.
- ◆ Always replace gasket rings and seals.
- ◆ Removing and installing the tandem pump
⇒ “2.12 Removing and installing the tandem pump”, page 282 .



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1 - Cylinder head

- reworking valve seats
 ⇒ “3.1 Reworking valve seats”, page 168

2 - Bearing shell

- Check fitting position
- do not mix up already used bearing shells (mark)
- ensure the retaining lugs are correctly located in the bearing caps and in the cylinder head

3 - Camshaft

- Wear limit, radial play: 0.11 mm
- Slack: max. 0.04 mm
- Inspecting axial play
 ⇒ “2.2 Checking the axial play of the camshaft”, page 149
- removing and installing:

Fabia II, Roomster

⇒ “2.6 Removing and installing camshaft (Fabia II, Roomster)”, page 159

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Superb II

⇒ “2.4 Removing and installing camshaft (Superb II)”, page 152

Octavia II

⇒ “2.5 Removing and installing camshaft (Octavia II)”, page 155

4 - Bearing shell

- Check fitting position
- do not mix up already used bearing shells (mark)
- ensure the retaining lugs are correctly located in the bearing caps and in the cylinder head

5 - Bearing caps

- removing and installing:

Fabia II, Roomster ⇒ “2.6 Removing and installing camshaft (Fabia II, Roomster)”, page 159

Superb II ⇒ “2.4 Removing and installing camshaft (Superb II)”, page 152

Octavia II ⇒ “2.5 Removing and installing camshaft (Octavia II)”, page 155

- Seal bearing caps 1 and 5 with sealant -D 454 300 A2-

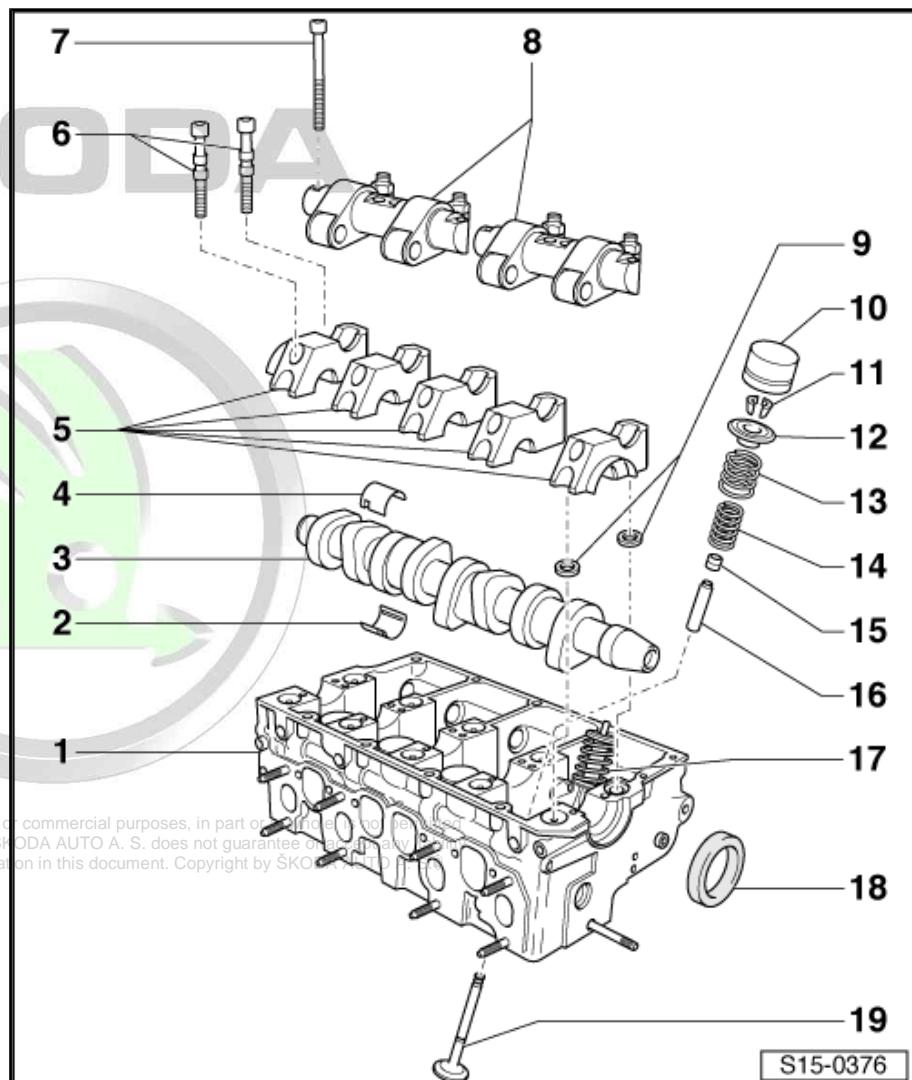
6 - Screw

- Replace after disassembly
- 8 Nm + 90°

7 - Screw

- Replace after disassembly
- Pay attention to the sequence for loosening and tightening:

Fabia II, Roomster ⇒ “2.6 Removing and installing camshaft (Fabia II, Roomster)”, page 159



S15-0376



Superb II ➤ “2.4 Removing and installing camshaft (Superb II)”, page 152

Octavia II ➤ “2.5 Removing and installing camshaft (Octavia II)”, page 155

- 20 Nm + 90°

8 - Valve-lever shaft

- do not mix up (mark)
- Pay attention to the sequence for loosening and tightening:

Fabia II, Roomster ➤ “2.6 Removing and installing camshaft (Fabia II, Roomster)”, page 159

Octavia II ➤ “2.5 Removing and installing camshaft (Octavia II)”, page 155

Superb II ➤ “2.4 Removing and installing camshaft (Superb II)”, page 152

9 - Washer

- for cylinder head screws
- before installing the bearing caps, insert into the cylinder head

10 - Hydraulic bucket tappets

- checking ➤ “2.7 Testing hydraulic bucket tappets”, page 162 .
- removing and installing
➤ “2.8 Replacing the valve stem seals on the installed cylinder head”, page 163
- do not mix up (mark)
- lay aside with contact surface facing down
- before installing check axial play of the camshaft
➤ “2.2 Checking the axial play of the camshaft”, page 149
- oil contact surfaces

11 - Valve collets

12 - Valve spring retainer

13 - Valve spring outside

- removing and installing
➤ “2.8 Replacing the valve stem seals on the installed cylinder head”, page 163

14 - Valve spring inside

- removing and installing
➤ “2.8 Replacing the valve stem seals on the installed cylinder head”, page 163

15 - Valve stem seal Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by ŠKODA AUTO A. S. ŠKODA AUTO A. S. does not guarantee or accept any liability for any damage resulting from the use of this document.

- Replace. ➤ “2.8 Replacing the valve stem seals on the installed cylinder head”, page 163 .

16 - Valve guide

- checking ➤ “3.2 Inspect valve guides”, page 171 .

17 - The unit injector

- removing and installing ➤ “1.9 Removing and installing the unit injector”, page 370

18 - Sealing ring

- Replace. ➤ “2.3 Replacing camshaft gasket ring”, page 150 .

19 - Valves

- Valve dimensions ➤ “3.3 Valve dimensions”, page 171
- do not rework, only grinding in is permissible

2.2 Checking the axial play of the camshaft

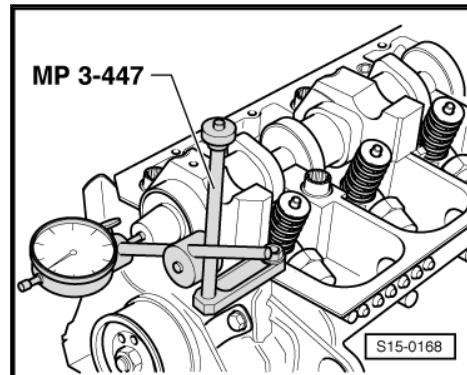
Special tools and workshop equipment required

- ◆ Universal dial gauge holder - MP3-447 (VW 387)-
- ◆ Dial gauge



Test sequence

- Perform measurement with the bucket tappets removed and the first and last bearing cap fitted.
- Wear limit: max. 0.15 mm.



2.3 Replacing camshaft gasket ring

Special tools and workshop equipment required

- ◆ Insertion tool - MP1-214 (10-203)-
- ◆ Gasket ring extractor - T30003 (3240)-
- ◆ Counterholder - T10051-
- ◆ Extractor - T10052-
- ◆ Screw M12 x 65

Removing

- Cylinder head attached at engine.
- Removing the toothed belt:

Fabia II, Roomster

⇒ “[1.9 Summary of components - toothed belt \(Fabia II, Roomster\)](#)”, page 64 .

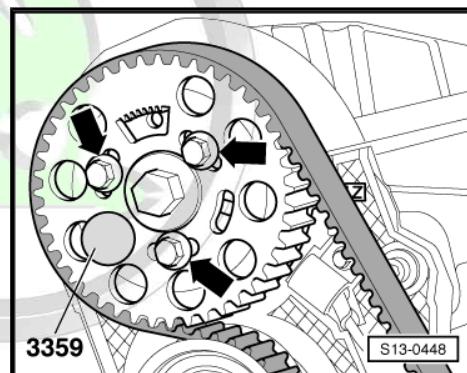
Octavia II

⇒ “[1.7 Summary of components - toothed belt \(Octavia II\)](#)”, page 53 .

Superb II

⇒ “[1.5 Summary of components - toothed belt \(Superb II\)](#)”, page 43 .

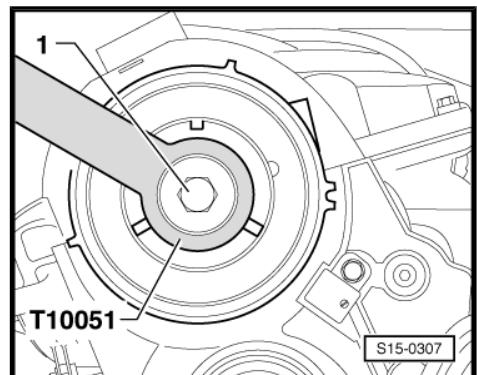
- Remove the locking pin -3359- .
- Unscrew bolts of camshaft sprocket -arrows- and remove camshaft sprocket from the hub.



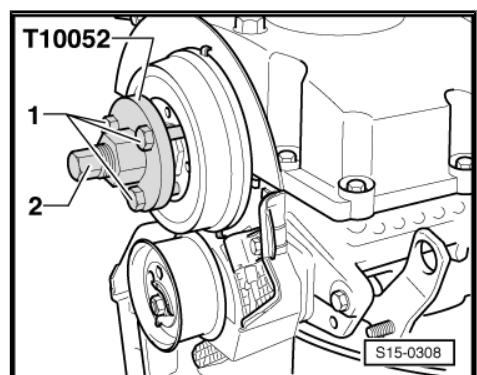
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- Loosen fixing bolt of the hub -1- approx. 2 turns, to do so use the counterholder -T10051- .



- Position the extractor -T10052- and screw the screws -1- into the hub.
- Pull off the hub, to do so counterhold the hexagonal wrench (SW30) of the extractor and screw in the screw -2-.
- Set the inner part of the sealing ring extractor -T30003 (3240)- flush with the outer part and interlock with the knurled screw.



- Oil the thread head of the gasket ring extractor, position and forcibly screw into the gasket ring of the camshaft as far as possible.
- Release knurled screw and turn the inner side against the camshaft until the gasket ring is pulled out.
- Clamp gasket ring extractor into the vice and remove gasket ring with pliers.
- Clean the contact and sealing surfaces.

Install

Installation is performed in the reverse order, pay attention to the following points:

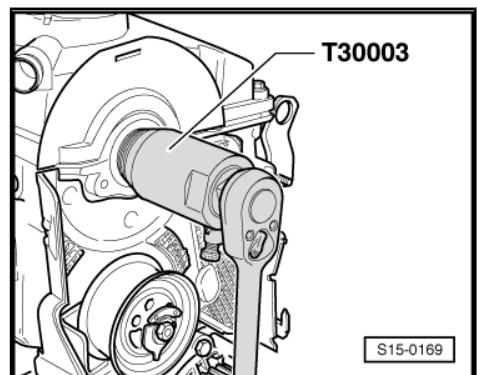


Note

The sealing lip of the gasket ring must neither be oiled nor greased additionally.

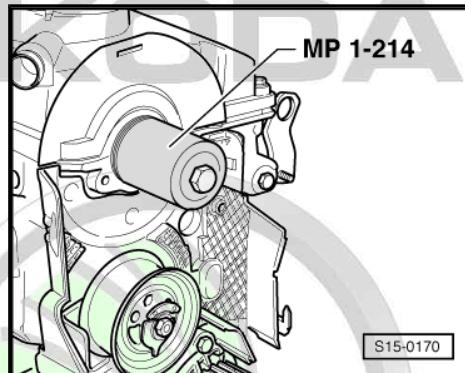
- Remove oil residue from the camshaft stud with a clean cloth.
- Cover slot on the camshaft cone with adhesive tape and carefully push the sealing ring onto the camshaft.

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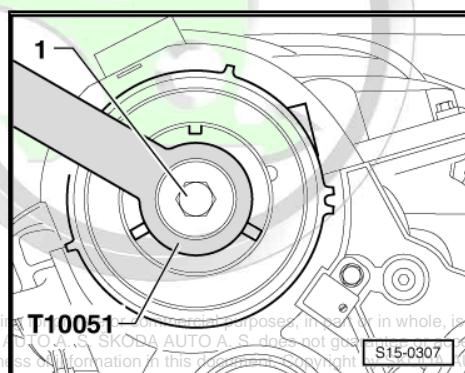




- Press in the gasket ring with the thrust piece of the insertion tool -MP1-214 (10-203)- and the screw M12 x 65 up to the stop.
- Position hub onto camshaft.



- Tighten screw -1- to 100 Nm, use counterholder -T10051- to hold.



- Push camshaft sprocket onto the hub.
- The tooth segment -arrow- of the camshaft sprocket must be at the top.
- Slightly screw in plug -1-.
- Lock hub with locking pin, e.g. -3359- .
- Install timing belt (set the timing):

Fabia II, Roomster

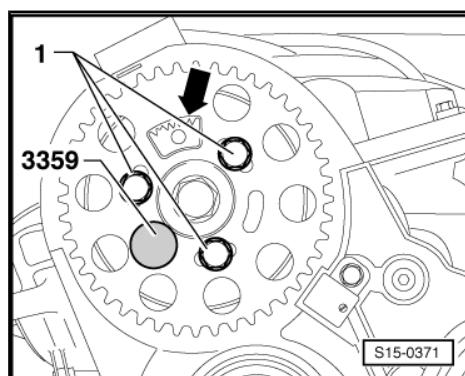
⇒ [“1.9 Summary of components - toothed belt \(Fabia II, Roomster\)”, page 64](#) .

Octavia II

⇒ [“1.7 Summary of components - toothed belt \(Octavia II\)”, page 53](#) .

Superb II

⇒ [“1.5 Summary of components - toothed belt \(Superb II\)”, page 43](#) .



2.4 Removing and installing camshaft (Superb II)

Special tools and workshop equipment required

- ◆ Counterholder - T10051-
- ◆ Extractor - T10052-
- ◆ Silicone sealant - D 176 404 A2-
- ◆ Sealant - D 454 300 A2-

2.4.1 Removing

- Cylinder head attached at engine.

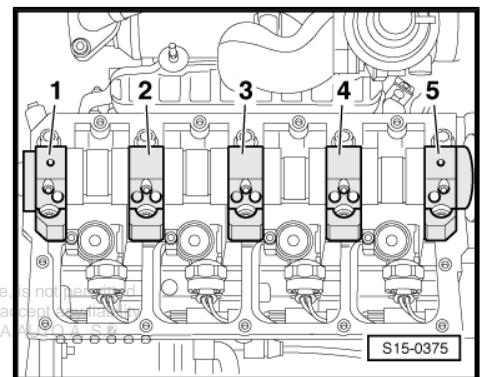
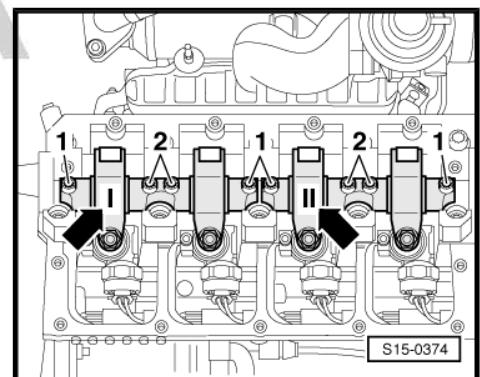


- Remove toothed belt
 ➤ “1.5 Summary of components - toothed belt (Superb II)”,
 page 43 .
- Remove tandem pump
 ➤ “2.12 Removing and installing the tandem pump”,
 page 282 .

 Note

The hoses can remain connected to the tandem pump.

- Remove camshaft sprocket and pull off hub [page 150](#) .
- Remove cylinder head cover
 ➤ “1.2 Removing and installing cylinder head cover (Octavia II, Superb II)”, page 116 .
- Mark the valve-lever shafts with waterproof marker to avoid mixing them up and to avoid destroying the basic setting of the pump-nozzle units --.
- First release the two outer -1- and then the inner screws -2- of the valve-lever shafts.
- Remove valve-lever shafts.



- First remove bearing caps -1-, -3- and -5-.
- Then release bearing caps -2- and -4- alternately and cross-wise.

 Note

- ◆ Ensure that the bearing shells of the camshaft are not mixed up.
- ◆ Mark assignment of the bearing shells for the camshaft with waterproof marker on the reverse side.

- Take out camshaft.

2.4.2 Install

Install in the reverse order of removal. When doing this, note the following:

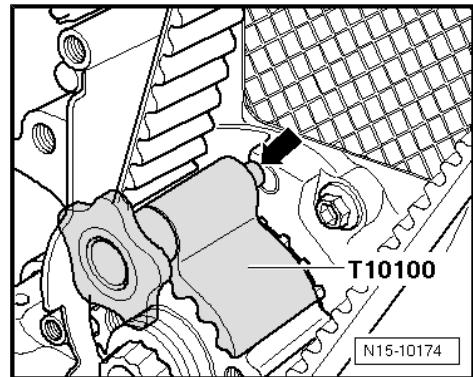
- Check if the crankshaft is on TDC for cylinder 1.



- Interlock the crankshaft toothed belt sprocket with the crankshaft arrester -T10100- at TDC for cylinder 1.

Note

The crankshaft arrester can only be fitted onto the toothed belt sprocket from the front side of the serration.



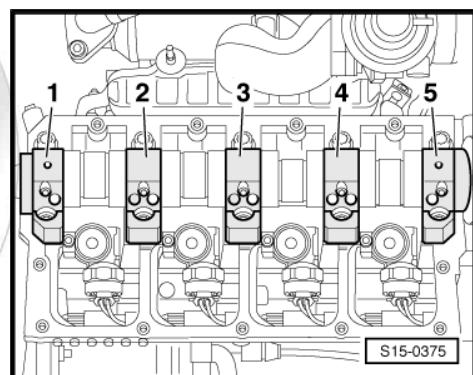
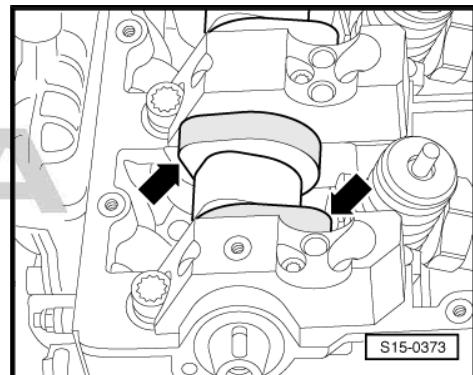
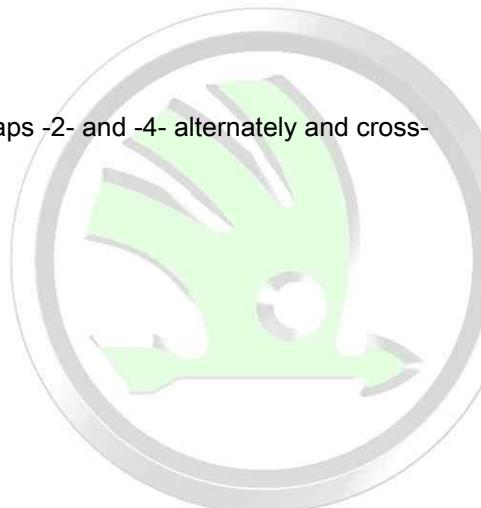
Note

- ◆ Ensure that the used bearing shells of the camshaft are not mixed up (pay attention to marking).
- ◆ When installing the camshaft pay attention to a correct fit of the retaining lugs of the bearing shells in the bearing caps and cylinder head.

- Oil contact surfaces of camshaft.
- Insert camshaft into the TDC for cylinder 1:
- The cams for cylinder 1 on the camshaft must point upwards --.

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- Then tighten bearing caps -2- and -4- alternately and cross-wise.

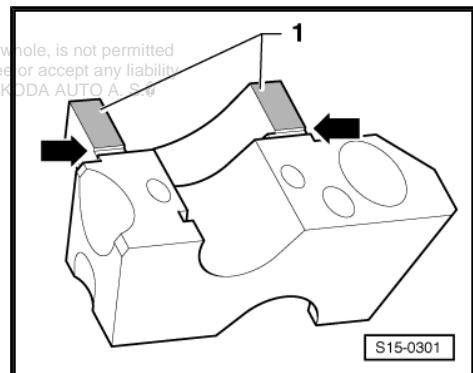


- Apply sealant -D 454 300 A2- thinly and uniformly to the outer bearing caps onto the surfaces -1-.

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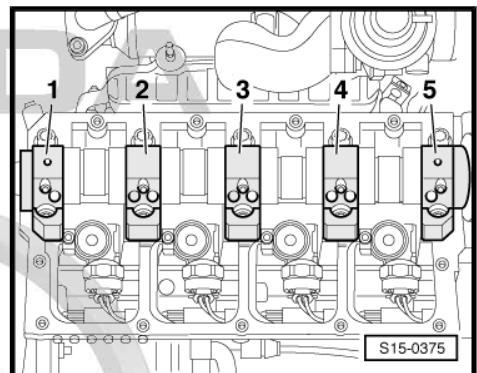
Note

Make sure no sealant penetrates into the grooves -- or onto the other surfaces.



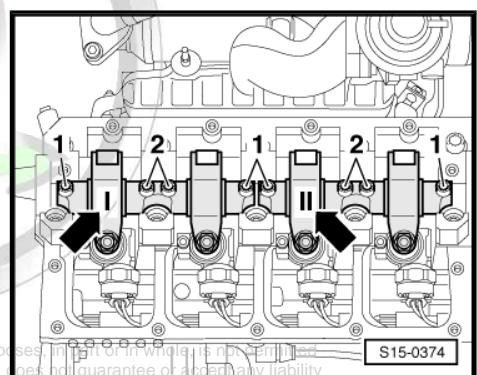


- Install and tighten bearing caps -1-, -3- and -5-.
- Bearing cap -5- must fit flush with the outer edge of the cylinder head as this may otherwise cause leaks on the tandem pump.



- Insert valve-lever shafts. At the same time pay attention to the markings -- when removing.
- First tighten the inner -2- and then the outer screws -1- in several stages.
- Install gasket ring for camshaft, hub and camshaft sprocket
 ⇒ [page 151](#).
- Lock hub of camshaft with locking pin -3359- .
- install (set the timing)
 ⇒ [“1.5 Summary of components - toothed belt \(Superb II\)”, page 43](#) .
- Install tandem pump
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 ⇒ [“2.12 Removing and installing the tandem pump”, page 282](#) .
- If the valve-lever shafts or ball pins were replaced, the unit injectors must be adjusted
 ⇒ [“1.7 Repairing the unit injectors - Summary of components”, page 367](#) .
- Install cylinder head cover
 ⇒ [“1.2 Removing and installing cylinder head cover \(Octavia II, Superb II\)”, page 116](#) .

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Note

- ◆ After installing the camshaft, the engine must not be started for about 30 minutes. The hydraulic bucket tappets must settle (otherwise valves would strike the pistons).
- ◆ After carrying out work on the valve gear, carefully crank engine at least 2 revolutions to ensure that no valve touches the piston when the engine is started.

2.5 Removing and installing camshaft (Octavia II)

Special tools and workshop equipment required

- ◆ Counterholder - T10051-
- ◆ Extractor - T10052-
- ◆ Silicone sealant - D 176 404 A2-
- ◆ Sealant - D 454 300 A2-

2.5.1 Removing

- Cylinder head attached at engine.

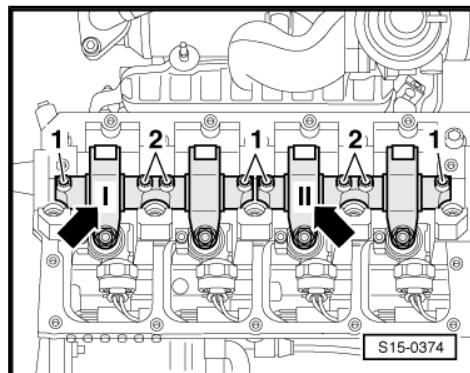


- Remove toothed belt
[⇒ "1.7 Summary of components - toothed belt \(Octavia II\)".
page 53](#) .
- Remove tandem pump
[⇒ "2.12 Removing and installing the tandem pump".
page 282](#) .

Note

The hoses can remain connected to the tandem pump.

- Remove camshaft sprocket and pull off hub [⇒ page 150](#) .
- Remove cylinder head cover
[⇒ "1.5 Removing and installing cylinder head \(Octavia II\)".
page 129](#) .
- Mark the valve-lever shafts with waterproof marker to avoid mixing them up and to avoid destroying the basic setting of the pump-nozzle units --.
- First release the two outer -1- and then the inner screws -2- of the valve-lever shafts.
- Remove valve-lever shafts.

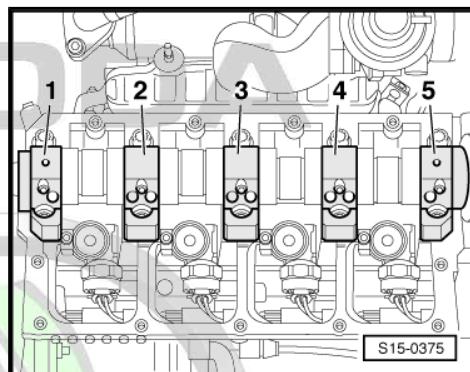


- First remove bearing caps -1-, -3- and -5-.
- Then release bearing caps -2- and -4- alternately and cross-wise.

Note

- ◆ Ensure that the bearing shells of the camshaft are not mixed up.
- ◆ Mark assignment of the bearing shells for the camshaft with waterproof marker on the reverse side.

- Take out camshaft.



2.5.2 Install

Install in the reverse order of removal. When doing this, note the following:

- Check if the crankshaft is on TDC for cylinder 1.

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- Depending on the version, interlock the crankshaft toothed belt sprocket with the crankshaft arrester -T10050- or crankshaft arrester -T10100- on TDC for cylinder 1.

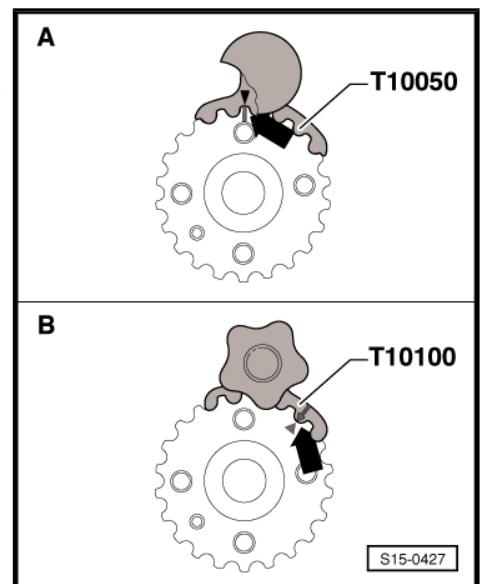
Version of the crankshaft toothed belt sprocket:

A = original version of toothed belt sprocket with circular tooth flanks, rectangular TDC marking at tooth in 12 o'clock position - use crankshaft arrester -T10050- .

B = new version of toothed belt sprocket with elliptical tooth flanks, triangular TDC marking at tooth opening in 1 o'clock position - use crankshaft arrester -T10100- .



- ◆ Markings on the toothed belt sprocket and on the crankshaft arrester must be in line with each other -arrow-. The stud on the crankshaft arrester must engage into the hole in the sealing flange.*
- ◆ The crankshaft arrester can only be fitted onto the toothed belt sprocket from the front side of the serration.*

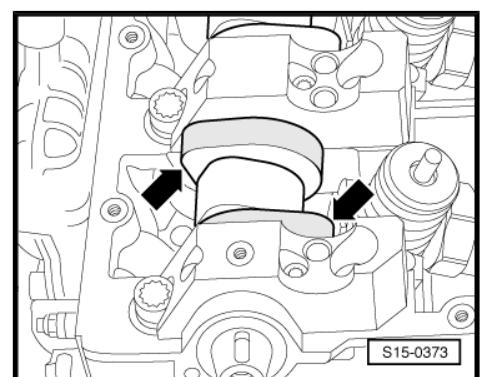


Note

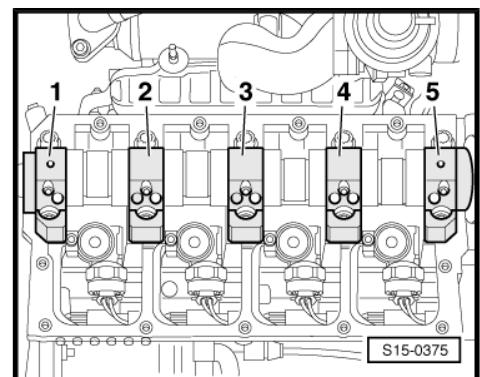
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- ◆ Ensure that the used bearing shells of the camshaft are not mixed up (pay attention to marking).*
- ◆ When installing the camshaft pay attention to a correct fit of the retaining lugs of the bearing shells in the bearing caps and cylinder head.*

- Oil contact surfaces of camshaft.
- Insert camshaft into the TDC for cylinder 1:
- The cams for cylinder 1 on the camshaft must point upwards --.



- Then tighten bearing caps -2- and -4- alternately and cross-wise.

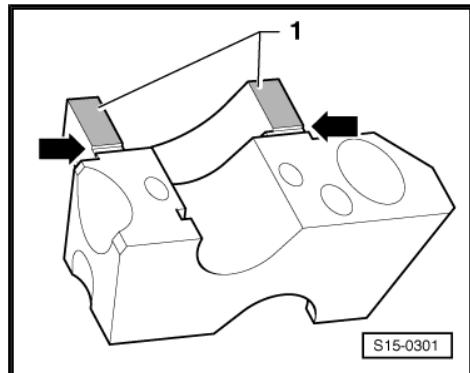




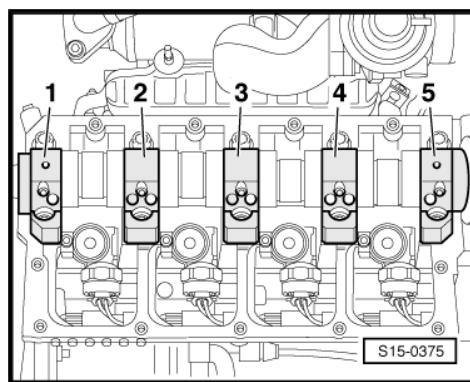
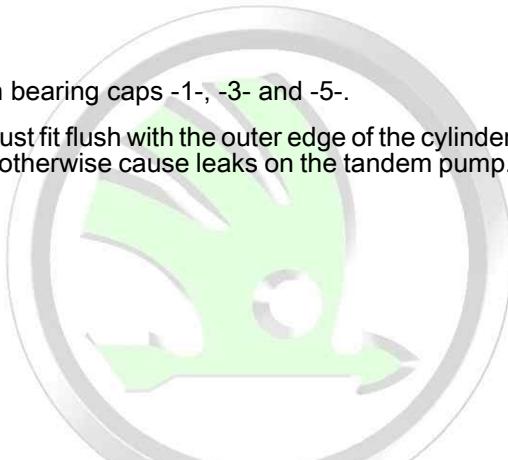
- Apply sealant -D 454 300 A2- thinly and uniformly to the outer bearing caps onto the surfaces -1-.

Note

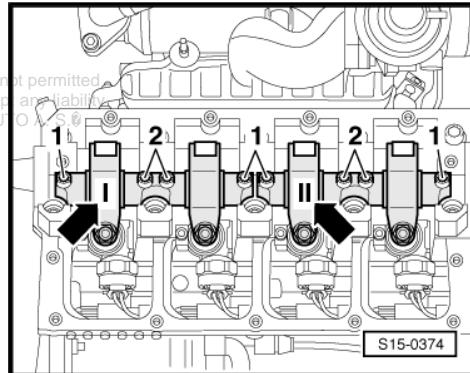
Make sure no sealant penetrates into the grooves -- or onto the other surfaces.



- Install and tighten bearing caps -1-, -3- and -5-.
- Bearing cap -5- must fit flush with the outer edge of the cylinder head as this may otherwise cause leaks on the tandem pump.



- Insert valve-lever shafts. At the same time pay attention to the markings -- when removing.
- First tighten the inner -2- and then the outer screws -1- in several stages.
- Install gasket ring for camshaft, hub and camshaft sprocket [⇒ page 151](#) .
- Lock hub of camshaft with locking pin -3359- .
- install (set the timing)
[⇒ "1.7 Summary of components - toothed belt \(Octavia II\)", page 53](#) .
- Install tandem pump
[⇒ "2.12 Removing and installing the tandem pump", page 282](#) .
- If the valve-lever shafts or ball pins were replaced, the unit injectors must be adjusted
[⇒ "1.7 Repairing the unit injectors - Summary of components", page 367](#) .
- Install cylinder head cover
[⇒ "1.2 Removing and installing cylinder head cover \(Octavia II, Superb II\)", page 116](#) .



Note

- ◆ After installing the camshaft, the engine must not be started for about 30 minutes. The hydraulic bucket tappets must settle (otherwise valves would strike the pistons).
- ◆ After carrying out work on the valve gear, carefully crank engine at least 2 revolutions to ensure that no valve touches the piston when the engine is started.



2.6 Removing and installing camshaft (Fabia II, Roomster)

Special tools and workshop equipment required

- ◆ Counterholder - T10051-
- ◆ Extractor - T10052-
- ◆ Silicone sealant - D 176 404 A2-
- ◆ Sealant - D 454 300 A2-

2.6.1 Removing

- Cylinder head attached at engine.
- Remove toothed belt
⇒ “1.9 Summary of components - toothed belt (Fabia II, Roomster)”, page 64 .
- Remove tandem pump
⇒ “2.12 Removing and installing the tandem pump”, page 282 .

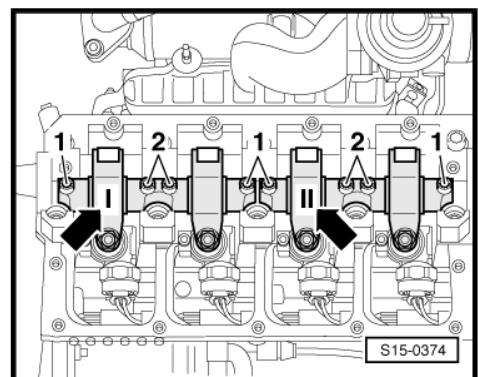


Note

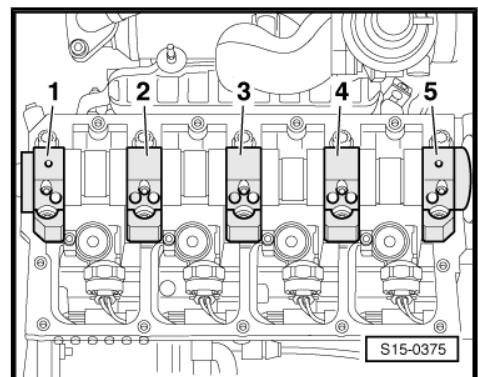
The hoses can remain connected to the tandem pump.

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- Remove camshaft sprocket and pull off hub ⇒ page 150 .
- Remove cylinder head cover
⇒ “1.3 Removing and installing cylinder head cover (Fabia II, Roomster)”, page 118 .
- Mark the valve-lever shafts with waterproof marker to avoid mixing them up and to avoid destroying the basic setting of the pump-nozzle units --.
- First release the two outer -1- and then the inner screws -2- of the valve-lever shafts.
- Remove valve-lever shafts.



- First remove bearing caps -1-, -3- and -5-.
- Then release bearing caps -2- and -4- alternately and cross-wise.



Note

- ◆ Ensure that the bearing shells of the camshaft are not mixed up.
- ◆ Mark assignment of the bearing shells for the camshaft with waterproof marker on the reverse side.
- Take out camshaft.



2.6.2 Install

Install in the reverse order of removal. When doing this, note the following:

For vehicles Roomster

- Check, if the crankshaft is positioned at TDC for cylinder 1 and the belt pulley is interlocked with the crankshaft arrester - T10050- .

For vehicles Fabia II

- Check, if the crankshaft is positioned at TDC for cylinder 1 and the belt pulley is interlocked with the crankshaft arrester - T10050- or crankshaft arrester - T10100- .

Continued for all vehicles

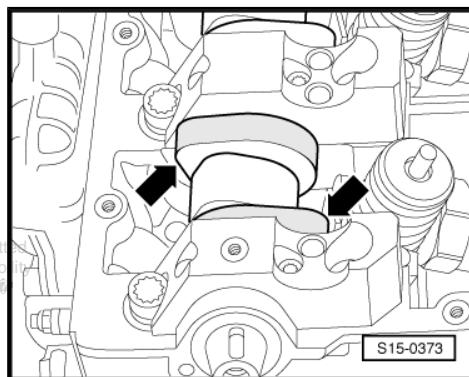
Note

- ◆ *Markings on the toothed belt sprocket and on the crankshaft arrester must be in line with each other -arrow-. The stud on the crankshaft arrester must engage into the hole in the sealing flange.*
- ◆ *The crankshaft arrester can only be fitted onto the toothed belt sprocket from the front side of the serration.*

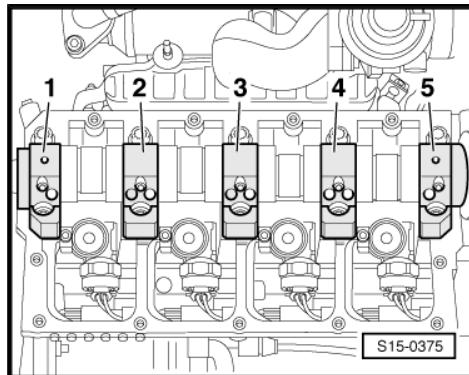
Note

- ◆ *Ensure that the used bearing shells of the camshaft are not mixed up (pay attention to marking).*
- ◆ *When installing the camshaft pay attention to a correct fit of the retaining lugs of the bearing shells in the bearing caps and cylinder head.*
- Oil contact surfaces of camshaft.
- Insert camshaft into the TDC for cylinder 1:
- The cams for cylinder 1 on the camshaft must point upwards --.

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- Then tighten bearing caps -2- and -4- alternately and cross-wise.



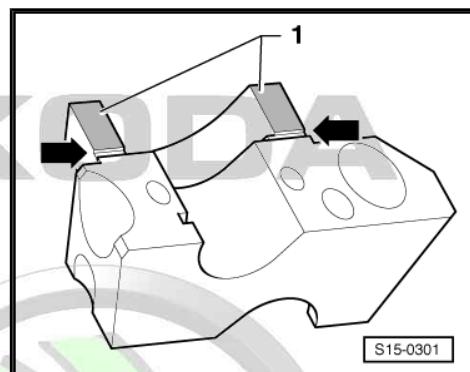


- Apply sealant -D 454 300 A2- thinly and uniformly to the outer bearing caps onto the surfaces -1-.



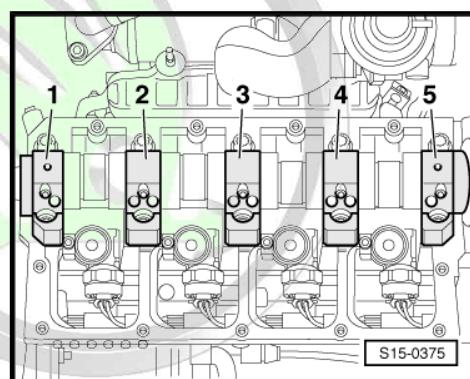
Note

Make sure no sealant penetrates into the grooves -- or onto the other surfaces.



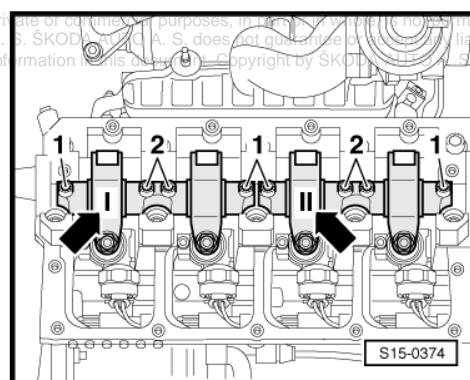
S15-0301

- Install and tighten bearing caps -1-, -3- and -5-.
- Bearing cap -5- must fit flush with the outer edge of the cylinder head as this may otherwise cause leaks on the tandem pump.



S15-0375

- Insert valve-lever shafts. At the same time pay attention to the markings -- when removing.
- First tighten the inner -2- and then the outer screws -1- in several stages.
- Install gasket ring for camshaft, hub and camshaft sprocket
⇒ [page 151](#).
- Lock hub of camshaft with locking pin -3359- .
- install (set the timing)
⇒ [“1.9 Summary of components - toothed belt \(Fabia II, Roomster\)”, page 64](#) .
- Install tandem pump
⇒ [“2.12 Removing and installing the tandem pump”, page 282](#) .
- If the valve-lever shafts or ball pins were replaced, the unit injectors must be adjusted
⇒ [“1.7 Repairing the unit injectors - Summary of components”, page 367](#) .
- Install cylinder head cover
⇒ [“1.3 Removing and installing cylinder head cover \(Fabia II, Roomster\)”, page 118](#) .



S15-0374



Note

- ◆ After installing the camshaft, the engine must not be started for about 30 minutes. The hydraulic bucket tappets must settle (otherwise valves would strike the pistons).
- ◆ After carrying out work on the valve gear, carefully crank engine at least 2 revolutions to ensure that no valve touches the piston when the engine is started.



2.7 Testing hydraulic bucket tappets

Special tools and workshop equipment required

- ◆ Feeler gauges
- ◆ Wooden or plastic wedge



Note

- ◆ *Hydraulic bucket tappets cannot be repaired.*
- ◆ *Irregular valve noises when starting engine are normal.*

Test sequence

- Start engine and allow to run until the radiator fan starts. Increase revolutions to about 2500 rpm for 2 minutes and undertake a test drive if necessary.



Note

If there are irregular valve noises which disappear after a long drive but keep reappearing on short journeys then the return-flow check tube is defective. Location: in the oil filter holder. The return-flow check tube cannot be replaced individually.

If the hydraulic bucket tappets are still loud, determine the faulty bucket tappets as follows:

- Remove cylinder head cover:
- ◆ Fabia II, Roomster
[⇒ “1.3 Removing and installing cylinder head cover \(Fabia II, Roomster\)”, page 118](#).
- ◆ Octavia II, Superb II
[⇒ “1.2 Removing and installing cylinder head cover \(Octavia II, Superb II\)”, page 116](#).
- Turn the crankshaft until the cam of the hydraulic bucket tappets to be tested is positioned on top, while doing so push the vehicle forward in 4th gear when ignition is switched off.

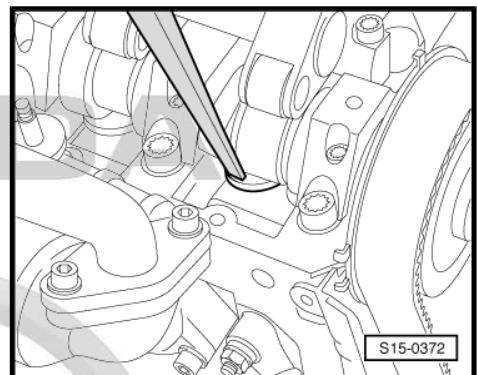




- Determine the play between the cams and the bucket tappet:
- Press down the bucket tappet using a wooden or plastic wedge.

If a 0.20 mm feeler gauge can be slipped between the camshaft and the bucket tappet:

- Replace hydraulic bucket tappets:
- ◆ Fabia II, Roomster
⇒ [“2.6 Removing and installing camshaft \(Fabia II, Roomster\)”, page 159](#).
- ◆ Octavia II
⇒ [“2.5 Removing and installing camshaft \(Octavia II\)”, page 155](#).
- ◆ Superb II
⇒ [“2.4 Removing and installing camshaft \(Superb II\)”, page 152](#).



Note

- ◆ After installing the camshaft, the engine must not be started for about 30 minutes. The hydraulic bucket tappets must settle (otherwise valves would strike the pistons).
- ◆ After carrying out work on the valve gear, carefully crank engine at least 2 revolutions to ensure that no valve touches the piston when the engine is started.

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2.8 Replacing the valve stem seals on the installed cylinder head

Special tools and workshop equipment required

- ◆ Valve stem seal extractor - MP1-206 (3047 A)-
- ◆ Insertion tool - MP1-212 (3129)-
- ◆ Disassembly and assembly device for valve collets - VAS 5161-



Note

- ◆ On engines with identification characters BJB, BLS and BXE, those ceramic glow plugs which are marked with a white or silvery painted gasket ring can be installed.
- ◆ Metal glow plugs have a red or green gasket ring.



Caution

Pay attention to safety instructions when handling ceramic glow plugs ⇒ [“3.6 Handling the ceramic glow plugs”, page 7](#).

Removing

- Remove the camshaft:
- ◆ Fabia II, Roomster
⇒ [“2.6 Removing and installing camshaft \(Fabia II, Roomster\)”, page 159](#).



- ◆ Octavia II
 ⇒ [“2.5 Removing and installing camshaft \(Octavia II\)”, page 155](#) .
- ◆ Superb II
 ⇒ [“2.4 Removing and installing camshaft \(Superb II\)”, page 152](#) .
- Remove bearing shells of camshaft from the cylinder head.

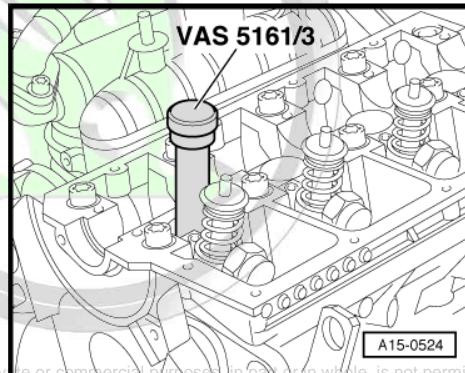
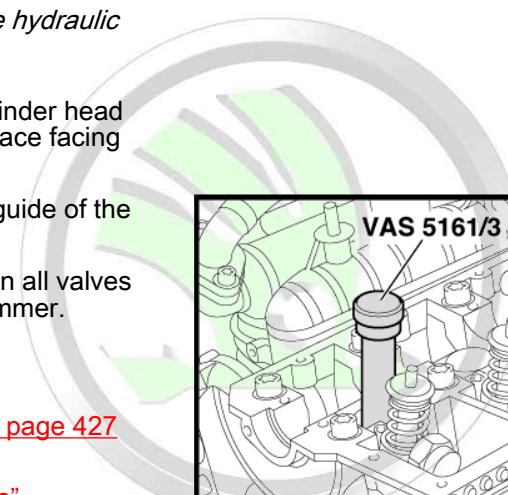
 Note

- ◆ *Do not exchange the used bearing shells of the camshaft, mark them for reinstalling.*
- ◆ *When installing again, mark the assignment of the hydraulic bucket tappets.*
- Remove the hydraulic bucket tappets from the cylinder head and place on a clean surface with the contact surface facing down.
- Insert the impact mandrel - VAS 5161/3- into the guide of the bucket tappet.
- If valve collets are tight, they must be slackened on all valves by applying slight blows with a rubber-headed hammer.
- Remove all glow plugs.
- ◆ made of metal
 ⇒ [“1.1 Removing and installing metal glow plugs”, page 427](#)
- ◆ made of ceramic
 ⇒ [“1.2 Removing and installing ceramic glow plugs”, page 427](#)

Procedure when replacing

- Put the piston of the relevant cylinder at “bottom dead centre”.

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A15-0524

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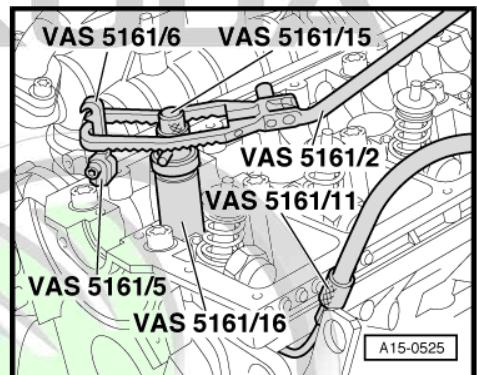


- Screw adapter - VAS 5161/11- into the threaded hole of the glow plug by hand.
- Screw the interlocking fork - VAS 5161/5- with connected detent part - VAS 5161/6- into the threaded bore M6 on the cylinder head.
- Insert the guide bushing - VAS 5161/16- into the guide of the bucket tappet of the removed valve up to the stop.
- Installation location of the guide bushing: with edge of knurled surface perpendicular to the direction of travel.
- Insert the assembly cartridge - VAS 5161/15- into the guide bushing - VAS 5161/16- .
- Connect the adapter - VAS 5161/11- to the compressed air with a commercially available intermediate piece and apply constant pressure.
- Minimum pressure: 0.6 MPa (6 bar)
- Hook the pressure fork - VAS 5161/2- onto the detent part - VAS 5161/6- and push the assembly cartridge - VAS 5161/15- downwards.
- Turn simultaneously the knurled screw of the assembly cartridge to the right, until the tips lock into the gaps between the valve collets.
- Slightly move the knurled screw of the assembly cartridge back and forward, by doing so the valve collets are pressed apart and are installed in the assembly cartridge.
- Release the pressure fork.
- Remove assembly cartridge - VAS 5161/15- and guide bushing - VAS 5161/16- .
- Remove the valve spring retainer and the valve springs.
- Pull off valve stem seal with extractor for valve stem seal - MP1-206 (3047 A)- .

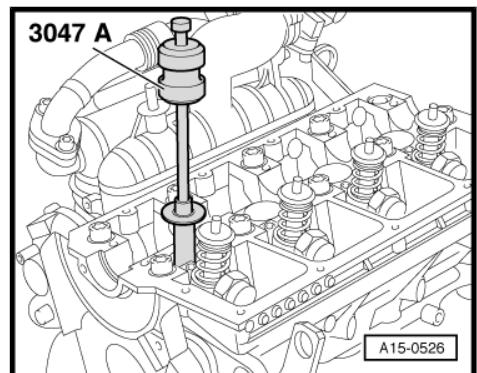


Note

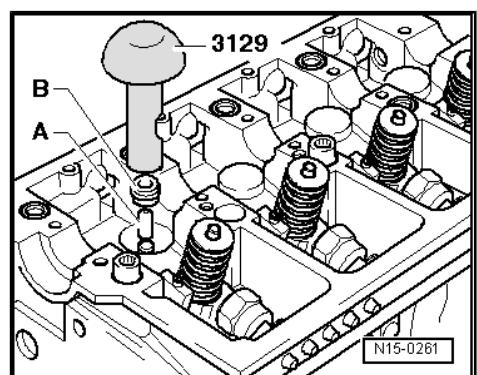
Each new valve stem seal has a plastic protective sleeve -A-.



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- To avoid damaging the new valve stem seal -B-, fit a plastic bushing -A- on the valve stem.
- Lightly oil sealing lip of the new valve stem seal.
- Slide the valve stem seal onto the plastic bushing.
- Carefully press the valve stem seal with the valve stem seal insertion tool - MP1-212 (3129)- onto the valve guide.
- Remove plastic sleeve.
- Position valve springs and valve spring retainer.

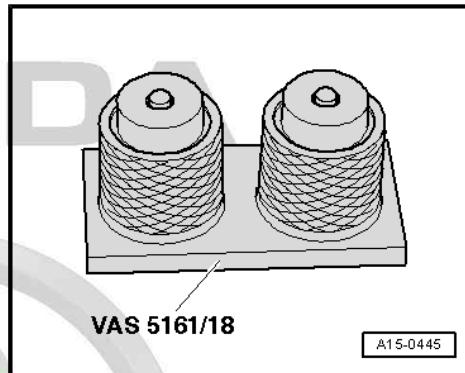




Note

If the valve collets were removed from the assembly cartridge, first of all they must be inserted into the insertion device - VAS 5161/18- .

- The large diameter of the valve collets points to the top.
- Press assembly cartridge - VAS 5161/15- from the top onto the insertion device - VAS 5161/18- and lift up the valve collets.



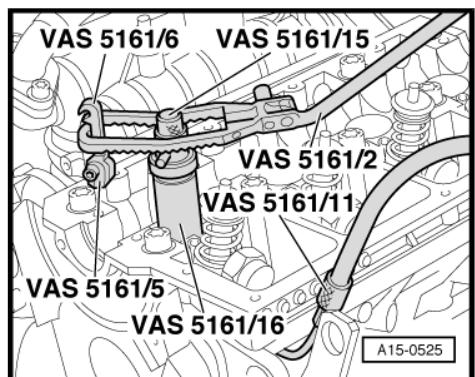
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- Insert the assembly cartridge - VAS 5161/15- again into the guide bushing - VAS 5161/16- .
- Press down the pressure fork - VAS 5161/2- and turn the knurled screw to the left while pulling it upwards, by doing so the valve collets are inserted.
- Release the pressure fork - VAS 5161/2- on tightened knurled screw.
- Repeat this procedure for each valve.

Install

Installation is performed in the reverse order, pay attention to the following points:



- Insert the hydraulic bucket tappets into the cylinder head.
- Install camshaft:
 - ◆ Fabia II, Roomster
⇒ [“2.6 Removing and installing camshaft \(Fabia II, Roomster\)”, page 159](#)
 - ◆ Octavia II
⇒ [“2.5 Removing and installing camshaft \(Octavia II\)”, page 155](#)
 - ◆ Superb II
⇒ [“2.4 Removing and installing camshaft \(Superb II\)”, page 152](#)

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Caution

Pay attention to safety instructions when handling ceramic glow plugs ⇒ [“3.6 Handling the ceramic glow plugs”, page 7](#).

- Install glow plugs:
 - ◆ made of metal
⇒ [“1.1 Removing and installing metal glow plugs”, page 427](#)
 - ◆ made of ceramic
⇒ [“1.2 Removing and installing ceramic glow plugs”, page 427](#)



Note

- ◆ After installing the camshaft, the engine must not be started for about 30 minutes. The hydraulic bucket tappets must settle (otherwise valves would strike the pistons).
- ◆ After carrying out work on the valve gear, carefully crank engine at least 2 revolutions to ensure that no valve touches the piston when the engine is started.



3 Inlet and exhaust valves

⇒ “3.1 Reworking valve seats”, page 168

⇒ “3.2 Inspect valve guides”, page 171

⇒ “3.3 Valve dimensions”, page 171

3.1 Reworking valve seats

If no perfect contact pattern is achieved by grinding in the valves, rework the valve seats.

Special tools and workshop equipment required

- ◆ Depth gauge
- ◆ Caliper gauge
- ◆ Device for reworking valve seats



Note

- ◆ When carrying out repairs on engines with leaking valves, it is not sufficient to replace the valves and to rework the valve seats. It is also necessary to inspect the valve guides for wear, particularly on engines with a high mileage
 ⇒ “3.2 Inspect valve guides”, page 171 .
- ◆ Calculate the maximum permissible reworking dimension before reworking the valve seats.
- ◆ Rework valve seats only sufficiently in order to obtain a proper contact pattern.
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- ◆ If the reworking dimension is exceeded, proper operation of the hydraulic valve clearance compensation is no longer assured and the cylinder head must be replaced.

Calculating maximum permissible reworking dimension

- Insert valve into the guide and press firmly against the valve seat.



Note

If a valve is replaced when carrying out repair work, use a new valve for the measurement.

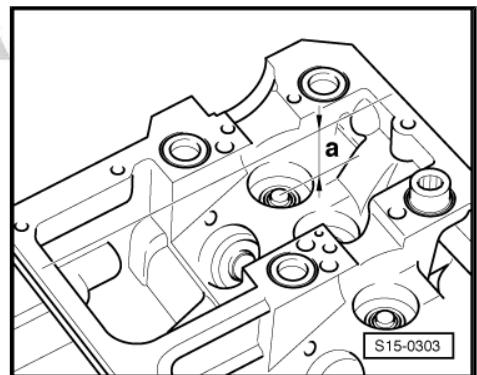


- Measure distance -a- between the end of the valve stem and the upper face of the cylinder head with a depth gauge.
- Calculate max. permissible reworking dimension from the distance measured and the minimum dimension.
 - ◆ Minimum dimension of inlet valve: 43.4 mm
 - ◆ Minimum dimension of outlet valve: 43.2 mm

Measured distance less minimum dimension = max. permissible reworking dimension.

Example for inlet valve:

Measured distance	44.1 mm
- Minimum dimension	- 43.4 mm
= max. permissible reworking dimension	= 0.7 mm



Note

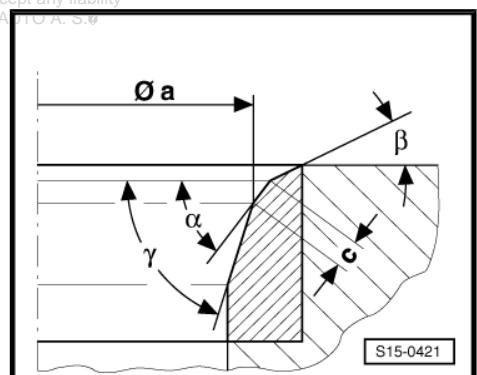
If the max. permissible reworking dimension is 0 mm or less than 0 mm, repeat measurement with a new valve. If the measuring result is still 0 mm or less than 0 mm, replace cylinder head.

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Reworking inlet valve seat

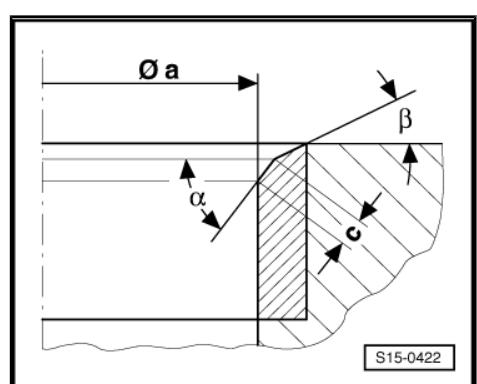
Di- men- sion	Inlet valve seat
Ø a mm	33,5
c mm	1,5
α	45° valve seat angle
β	15° top correction angle
γ	60° bottom correction angle

The tilting of the valve seat lower edge by 30° is absolutely essential on the basis of the flow characteristics in the inlet canal.



Reworking exhaust valve seat

Di- men- sion	Exhaust valve seat
Ø a mm	27,5
c mm	2,0
α	45° valve seat angle
β	15° top correction angle



Work procedure

Reworking can be carried out by hand while complying with the following conditions:

- Wear limit of valve guides must not exceed the permissible dimension [⇒ page 168](#).
- Use NAC milling cutter with carbide metal tips (min. 90 HRC).
- Mill with the milling cutter using slight pressure in such a way that an even removal of swarf is ensured over the whole working surface.



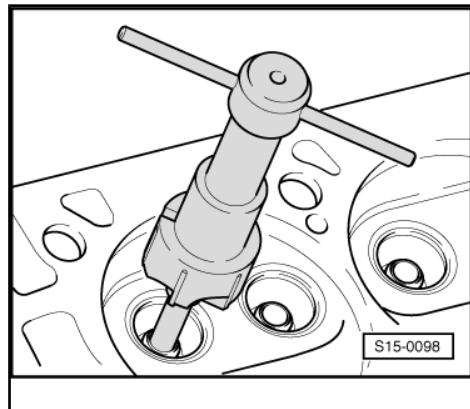
Mill valve seats with NAC milling cutter

- Place cylinder head on a felt base and secure to prevent it from turning.
- Match diameter of guide drift to diameter of valve guides.

Valve guide	\varnothing Guide drift in mm
Inlet valve	7,0 -0,01
Exhaust valve	

- Match diameter of milling cutter to diameter of valve.

Valve seat	\varnothing Milling cutter 90° mm	\varnothing Milling cutter 150° mm	\varnothing Milling cutter 60° mm
Inlet valve \varnothing 36 mm	36	37	21/34
Outlet valve \varnothing 31.5 mm	32	33	



Mill inlet valve seat

- Mill valve seat with 90° milling cutter until a perfect contact pattern is achieved. (Do not exceed maximum permissible reworking dimension!)
- Mill bottom correction angle with 60° milling cutter until the valve seat diameter -a- is achieved [⇒ page 169](#).
- Mill bottom correction angle with 150° milling cutter until valve seat width -c- is achieved [⇒ page 169](#).

Mill outlet valve seat

- Mill valve seat with 90° milling cutter until a perfect contact pattern is achieved. (Do not exceed maximum permissible reworking dimension!)
- Measure achieved valve seat width with caliper gauge:

Specified value: 2.0 mm

If the measured dimension is less than the nominal value:

- Chamfer valve seat with 90° milling cutter until valve seat width -c- is achieved [⇒ page 169](#). (Do not exceed maximum permissible reworking dimension!)

If the measured dimension is more than the nominal value:

- Mill bottom correction angle with 150° milling cutter until valve seat width -c- is achieved [⇒ page 169](#).

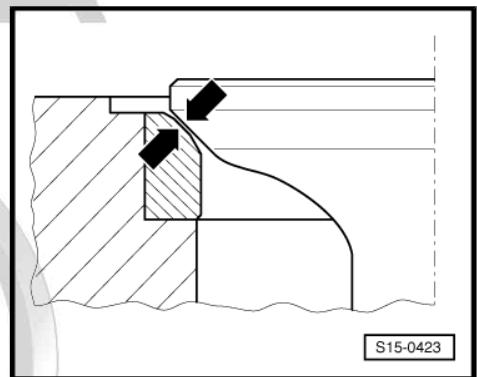
Grinding in valves



- Grind in valves with fine grinding paste to achieve a perfect contact pattern between the valve and valve seat --.
- Check contact pattern e.g. with water colour (perfect contact pattern over entire circumference).
- Install valve springs and check the tightness of the valves by filling petrol into the inlet and outlet channels (no petrol must flow out at the valve seat).

Checking

- After the repair measure the dimension -a- again and calculate the maximum permissible reworking dimension [⇒ page 168](#).



If the maximum permissible reworking dimension was exceeded, the cylinder head must be replaced as the proper operation of the valve gear is no longer assured.

3.2 Inspect valve guides

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Special tools and workshop equipment required

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- ◆ Universal dial gauge holder - MP3-447 (VW 387)-
- ◆ Dial gauge

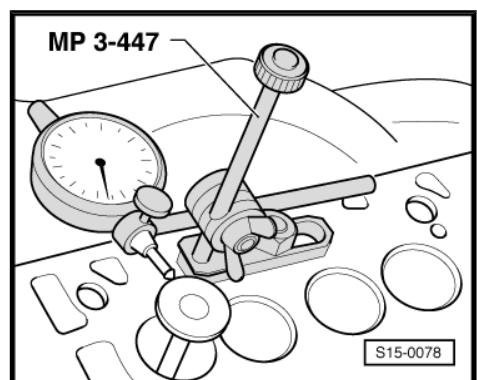
Test sequence

- Insert valve into valve guide. The end of valve stem must be flush with guide.

Valve rock: max. 1,3 mm.



- ◆ *If the wear limit is exceeded, repeat measurement with new valves. If the wear limit is again exceeded, replace cylinder head. The valve guides cannot be replaced.*
- ◆ *If the valves are replaced when carrying out repair work, use new valves for the measurement.*

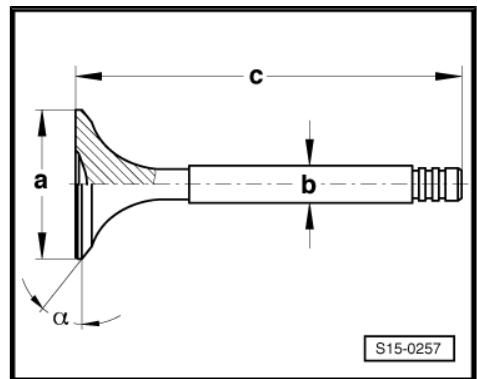


3.3 Valve dimensions

Dimension	Inlet valve	Exhaust valve
Ø a mm	35,95	31,45
Ø b mm	6,980	6,965
c mm	89,45	89,05
α °	45	45



Valves must not be reworked by grinding. Only grinding in with grinding paste is permissible.





17 – Lubrication

1 Removing and installing parts of the lubrication system

⇒ “1.1 Lubrication system - Summary of components”,
 page 172

⇒ “1.2 Summary of components - oil filter bracket (Octavia II, Superb II)”, page 175

⇒ “1.3 Summary of components - oil filter bracket (Fabia II, Roomster)”, page 177

⇒ “1.4 Removing and installing oil pan (Octavia II, Superb II)”,
 page 178

⇒ “1.5 Removing and installing oil pan (Fabia II, Roomster)”, page
 180

⇒ “1.6 Removing and installing oil pump”, page 182

⇒ “1.7 Testing oil pressure and oil pressure switch”, page 183

1.1 Lubrication system - Summary of components

Note

- ◆ If considerable quantities of metal swarf as well as abrasion is found in the engine oil when carrying out engine repairs, carefully clean the oil galleries in order to avoid consequential damage and additionally replace the engine oil cooler.
 - ◆ The oil level must not exceed the “MAX.” marking - risk of damage to catalytic converter!
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Check the engine oil, amount of oil and oil specification:

- ⇒ Maintenance ; Booklet Fabia II .
- ⇒ Maintenance ; Booklet Roomster .
- ⇒ Maintenance ; Booklet Octavia II .
- ⇒ Maintenance ; Booklet Superb II .

**1 - Screw**

- 15 Nm

2 - Nut

- 15 Nm

3 - Support

- for cable of oil level and oil temperature sender - G266-
- pay attention to different version

4 - Sprocket**5 - Dipstick**

- The oil level must not be above the "MAX." marking

6 - Hopper

- Remove for extracting oil

7 - Guide tube**8 - Oil injection nozzle**

- for piston cooling
- Pay attention to part number (right-angle bend)

9 - Pressure valve

- opens at a pressure of 0.25 to 0.32 MPa
- replace without sealant
- 27 Nm

10 - O-ring

- Replace after disassembly

11 - Suction line

- Clean strainer if dirty

12 - Baffle**13 - Oil pan**

- removing and installing:

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Fabia II, Roomster ➔ “1.5 Removing and installing oil pan (Fabia II, Roomster)”, page 180

Octavia II, Superb II ➔ “1.4 Removing and installing oil pan (Octavia II, Superb II)”, page 178

- install with silicone sealant ➔ Electronic catalogue of original parts

14 - Oil drain plug

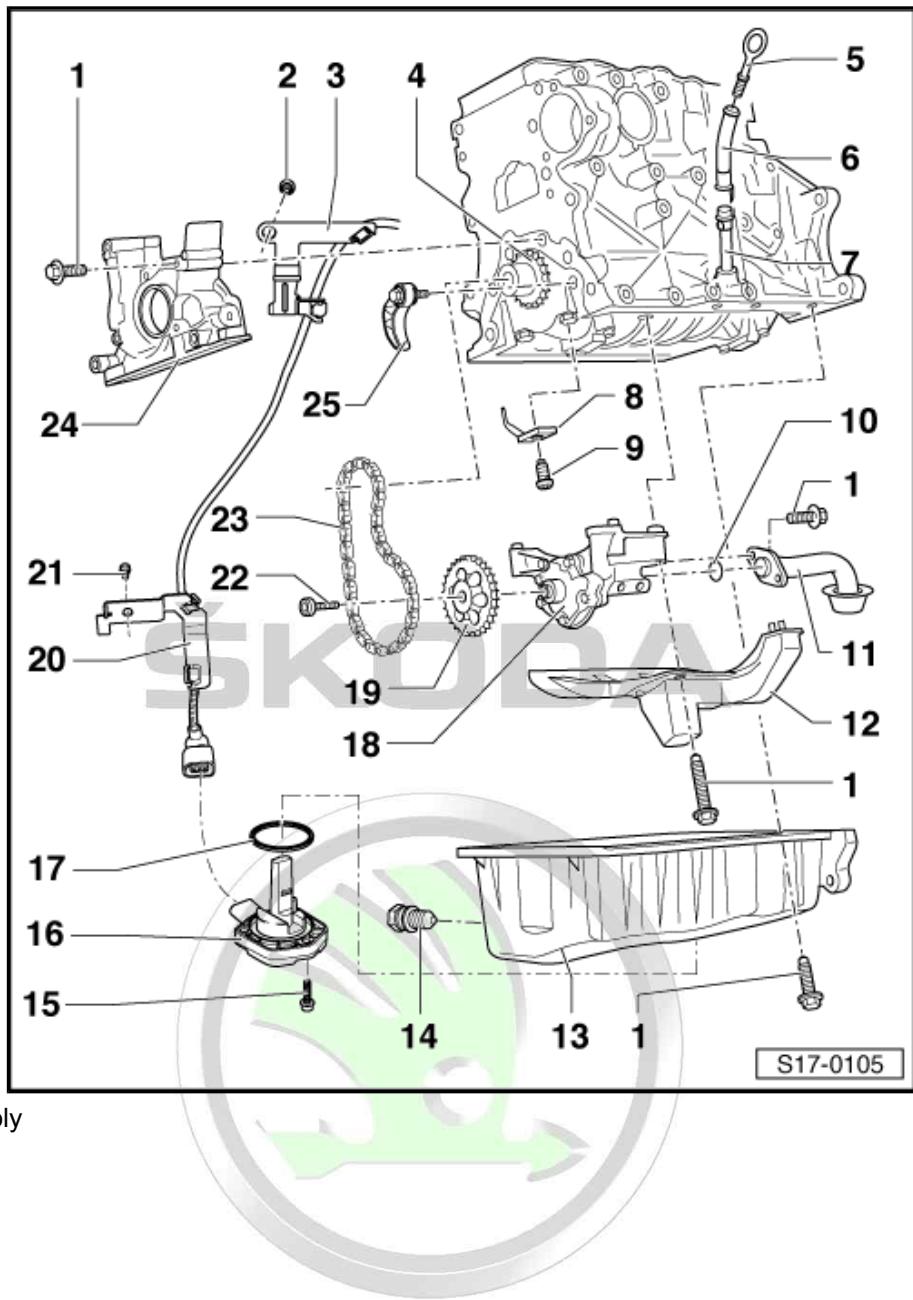
- Replace after disassembly
- with gasket
- 30 Nm

15 - Screw

- Replace after disassembly
- 10 Nm

16 - Oil level and oil temperature sender -G266-

- checking ➔ Vehicle diagnostic tester.



**17 - O-ring**

- Replace after disassembly

18 - Oil pump

- with pressure relief valve 1.2 MPa (12 bar)
- removing and installing [⇒ "1.6 Removing and installing oil pump", page 182](#)
- Before installing, check whether both dowel sleeves for centering oil pump/cylinder block are present
- if there is any scoring on the contact surfaces of the gears, replace
- Tightening torque of oil pump cover on oil pump housing: 10 Nm

19 - Oil pump sprocket

- Fits onto oil pump shaft in one position only

20 - Bracket at bottom

- for the cable to the oil level and oil temperature sender

21 - Screw

- 15 Nm

22 - Screw

- Replace after disassembly
- 20 Nm + 90°

23 - Oil pump chain

- before removing mark running direction
- check for wear

24 - Sealing flange on the belt pulley side

- Replacing gasket ring for crankshaft on belt pulley side:

Fabia II, Roomster [⇒ "2.4 Replacing crankshaft sealing ring on belt pulley side \(Fabia II, Roomster\)", page 79](#)

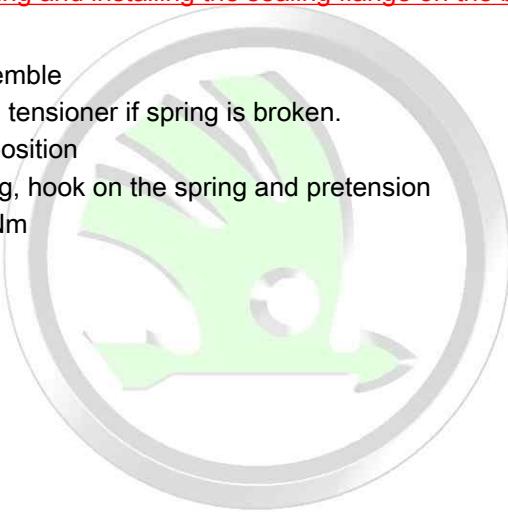
Octavia II, Superb II

[⇒ "2.3 Replacing crankshaft sealing ring on belt pulley side \(Octavia II, Superb II\)", page 77](#)

- removing and installing
[⇒ "2.5 Removing and installing the sealing flange on the belt pulley side", page 81](#)

25 - Chain tensioner

- do not disassemble
- Replace chain tensioner if spring is broken.
- Check fitting position
- When installing, hook on the spring and pretension
- tighten to 16 Nm



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1.2 Summary of components - oil filter bracket (Octavia II, Superb II)

1 - Screw plug

- 25 Nm

2 - Gasket

- Replace after disassembly

3 - Engine oil cooler

- Pay attention to the information regarding a necessary replacement.
- Connection diagram for coolant hoses:

Octavia II

⇒ [“1.2 Connection diagram for coolant hoses \(Octavia II\)”, page 189](#)

Superb II

⇒ [“1.1 Connection diagram for coolant hoses \(Superb II\)”, page 185](#)

4 - Gasket

- Replace after disassembly
- Fitting position
⇒ Fig. “[Fitting position of gasket for engine oil cooler](#)”, page 176

5 - Screw

- Replace after disassembly
- tighten crosswise
- 15 Nm + 90°

6 - Gasket

- Replace after disassembly

7 - Oil filter holder

- with return-flow check tube
- Oil return-flow check tube cannot be replaced individually

8 - Sealing ring

- Replace after disassembly

9 - Oil pressure switch - F1-

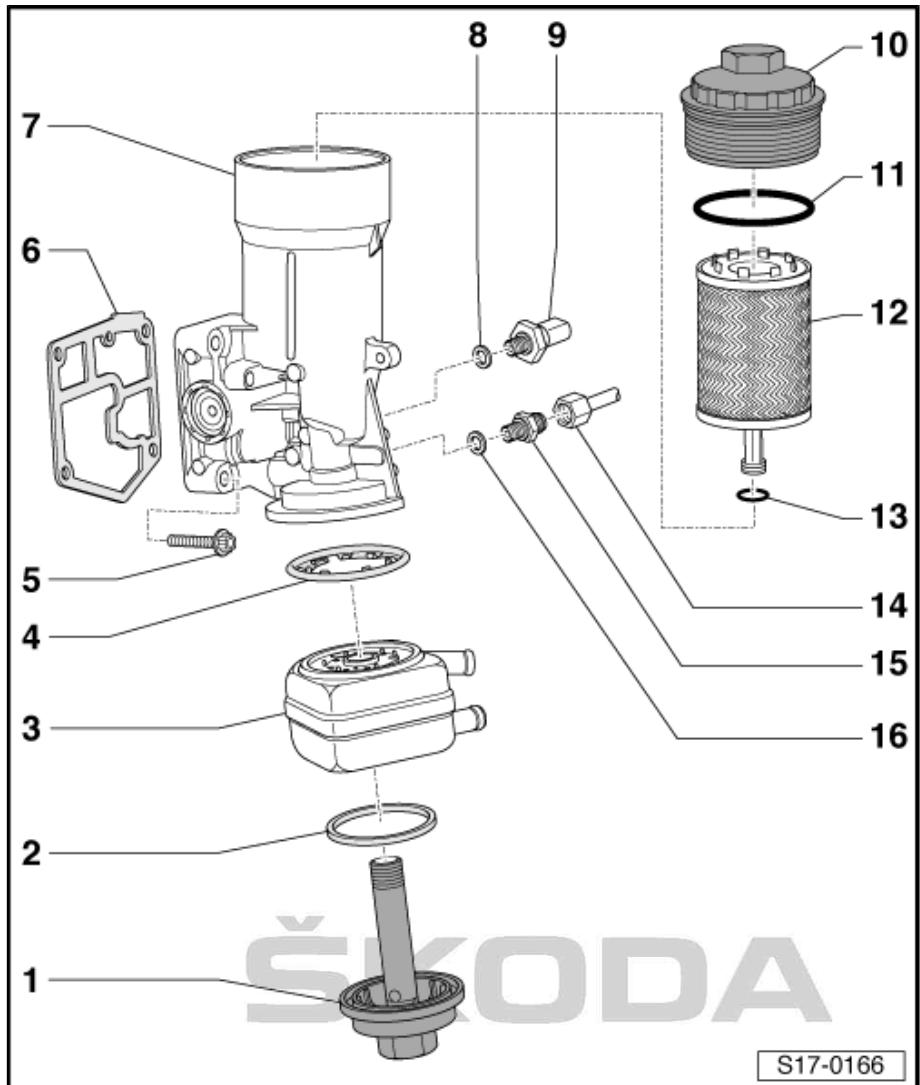
- 0.07 MPa (0.7 bar)
- checking ⇒ [“1.7 Testing oil pressure and oil pressure switch”, page 183](#)
- 20 Nm

10 - Screw cap

- loosen and tighten up with the oil filter spanner -3417-
- 25 Nm

11 - O-ring

- Replace after disassembly



S17-0166



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12 - Oil filter element

- pull off from screw cap Pos. 10
- in case of oil filter change, replace O-rings -11- and -13-
- Check fitting position
- Pay attention to change intervals:

⇒ Maintenance ; Booklet Octavia II

⇒ Maintenance ; Booklet Superb II



13 - O-ring

- Replace after disassembly

14 - Oil feed line

- to exhaust gas turbocharger
- Observe the mounting sequence:
 - Screw on the union nuts first of all by hand.
 - Then tighten the union nuts to 22 Nm.
 - Subsequently secure the oil feed line in the brackets.



15 - Connection fittings

- 35 Nm

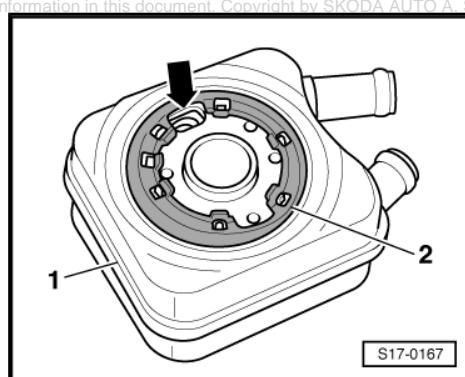
16 - Sealing ring

- Replace after disassembly

Fitting position of gasket for engine oil cooler

- Place the gasket -2- in such a way that it can be pressed onto all the lugs of the engine oil cooler -1-.
- The oil duct -arrow- must not be covered from the gasket.

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1.3 Summary of components - oil filter bracket (Fabia II, Roomster)

1 - Screw plug

- 25 Nm

2 - Gasket

- Replace after disassembly

3 - Engine oil cooler

- Pay attention to the information regarding a necessary replacement.
- connection diagram for coolant hoses
[⇒ "1.3 Connection diagram for coolant hoses \(Fabia II, Roomster\)", page 193](#)

4 - Gasket

- Replace after disassembly
- Fitting position
[⇒ Fig. "Fitting position of gasket for engine oil cooler", page 178](#)

5 - Screw cap

- with gasket
- do not slacken, otherwise replace
- 10 Nm

6 - Oil pressure switch - F1-

- 0.07 MPa (0.7 bar)
- Cut open gasket ring if leaking and replace
- checking
[⇒ "1.7 Testing oil pressure and oil pressure switch", page 183](#).
- 20 Nm

7 - Oil filter holder

- with integrated pressure relief valve (0.5 MPa)

8 - Screw

- Replace after disassembly
- before tightening, turn in by hand first
- 15 Nm + 90°

9 - Gasket

- Replace after disassembly

10 - Sealing ring

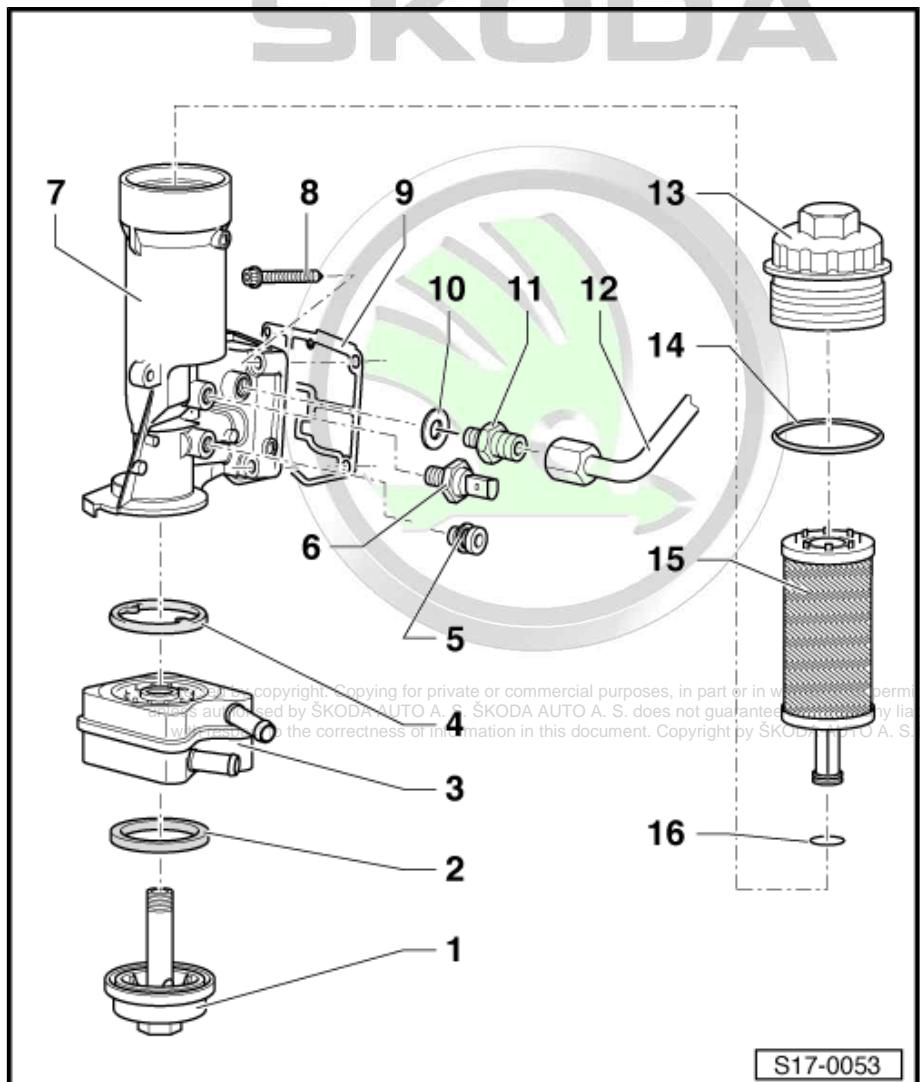
- Replace after disassembly

11 - Connection fittings

- 30 Nm

12 - Oil feed line

- to exhaust gas turbocharger



S17-0053



- Observe the mounting sequence:
- Screw on the union nuts first of all by hand.
- Then tighten the union nuts to 22 Nm.
- Subsequently secure the oil feed line in the brackets.

13 - Screw cap

- 25 Nm

14 - O-ring

- Replace after disassembly

15 - Oil filter element

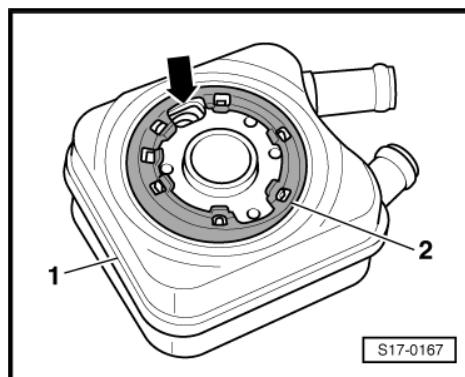
- Replace O-rings Pos. -14- and Pos. -16- if oil is changed

16 - O-ring

- Replace after disassembly

Fitting position of gasket for engine oil cooler

- Place the gasket -2- in such a way that it can be pressed onto all the lugs of the engine oil cooler -1-.
- The oil duct -arrow- must not be covered from the gasket.



1.4 Removing and installing oil pan (Octavia II, Superb II)

Special tools and workshop equipment required

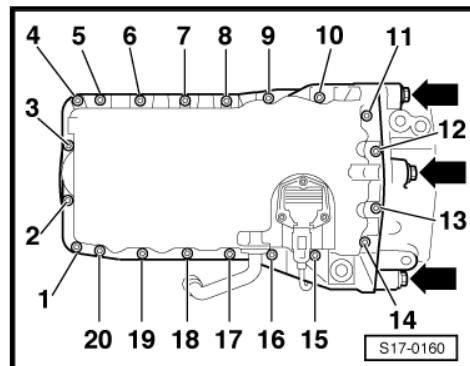
- ◆ Socket insert - T10058- or socket insert SW 5, e.g. -3249-
- ◆ Sealant remover gasket stripper (bearing code GST, bearing article no. R 34402), manufacturer Retech s.r.o.
- ◆ Cleaning and degreasing agent , e.g. -D 009 401 04-
- ◆ Protective goggles and gloves
- ◆ Silicone sealant ⇒ Electronic catalogue of original parts (ET-KA)

Removing

- Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
- Remove right air guide pipe, to do so pull the retaining clips.
- Disconnect plug at oil level and oil temperature sender - G266- .
- Drain engine oil:
⇒ Maintenance ; Booklet Octavia II .
- ⇒ Maintenance ; Booklet Superb II .



- Unscrew the bolts of oil pan/gearbox --.
 - Loosen bolts -1...20- crosswise and release.
 - Remove oil pan, if necessary release by applying slight blows with a rubber-headed hammer.

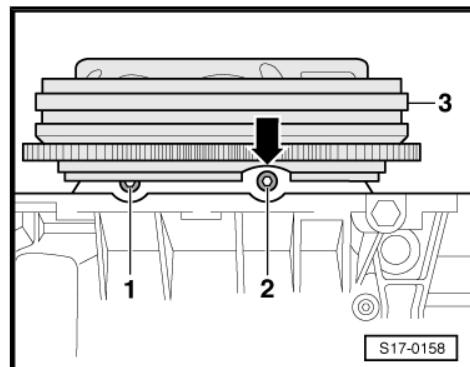


Note

Both rear oil pan bolts -1- and -2- are accessible through the recess -arrow- at the flywheel -3-, turn the flywheel appropriately to allow this.

Install

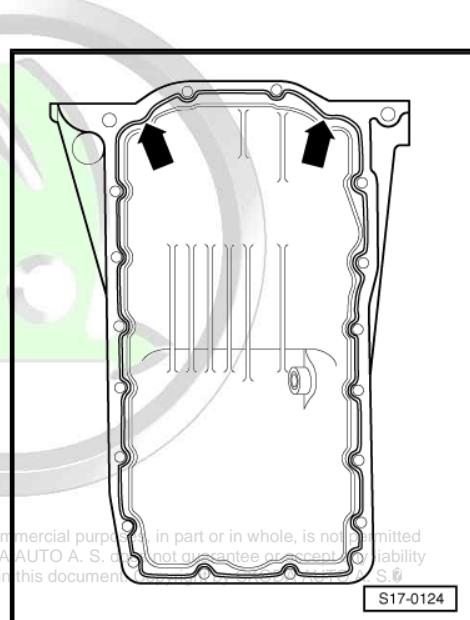
Install in the reverse order of removal. When doing this, note the following:



WARNING

Wear protective gloves when working with sealant and grease remover!

- Clear sealing surface on the oil pan from gasket residues with chemical sealant remover.
 - Degrease the sealing surfaces.
 - Cut off nozzle tube at the front marking (diameter of nozzle approx. 3 mm).
 - Apply silicone sealant bead ⇒ Electronic Catalogue of Original Parts -arrow- to the clean sealing surface of the oil pan, as shown.
 - Thickness of sealant bead: 2...3 mm.



Note

- ◆ *The sealant bead must not be thicker than 3 mm otherwise excess sealant may get into the oil pan and clog the strainer in the oil suction pipe.*
 - ◆ *Take particular care when applying sealant bead in the area of the sealing flange at the rear --.*
 - ◆ *The oil pan must be installed within 5 minutes after applying the silicone sealant ⇒ Electronic Catalogue of Original Parts.*

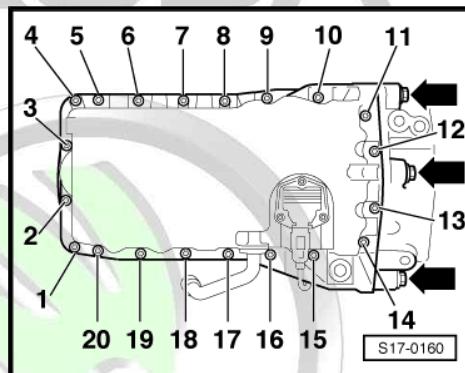
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- Fit on oil pan immediately and tighten the bolts as follows:
- First of all pre-tighten screws -1...20- crosswise to 5 Nm.
- Tighten the bolts of the oil pan/gearbox -- to 45 Nm.
- Tighten screws -1...20- crosswise to 15 Nm.

Note

- ◆ When installing the oil pan with the engine removed, ensure that the oil pan is flush with the cylinder block at the flywheel side.
- ◆ After installing the oil pan, allow the sealant to dry for about 30 minutes. Only then may engine oil be filled in.



- Fill with engine oil and check the oil level.
- ⇒ Maintenance ; Booklet Octavia II
- ⇒ Maintenance ; Booklet Superb II

1.5 Removing and installing oil pan (Fabia II, Roomster)

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Special tools and workshop equipment required

- ◆ Socket insert - T10058-
- ◆ Sealant remover gasket stripper (bearing code GST, bearing article no. R 34402), manufacturer Retech s.r.o.
- ◆ Cleaning and degreasing agent , e.g. -D 009 401 04-
- ◆ Protective goggles and gloves
- ◆ Silicone sealant ⇒ Electronic catalogue of original parts (ET-KA)

Removing

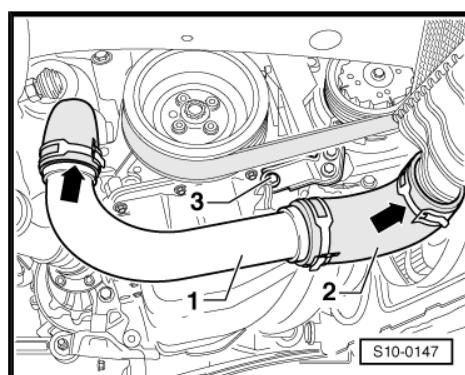
- Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .

For engine with engine code AXR, BSW

- Unscrew screw -3- for bracket and remove air guide pipe -1-, to do so pull the retaining clips.

Continued for all vehicles

- Disconnect plug at oil level and oil temperature sender - G266- .
- Drain engine oil:
⇒ Maintenance ; Booklet Fabia II .
⇒ Maintenance ; Booklet Roomster .



Note

Use hinged wrench - 3185- to slacken oil pan bolts at flywheel side and unscrew with socket insert - 3249- .



- Unscrew the bolts of oil pan/gearbox --.
- Loosen bolts -1 ... 20- crosswise and release.
- Remove oil pan, if necessary release by applying slight blows with a rubber-headed hammer.

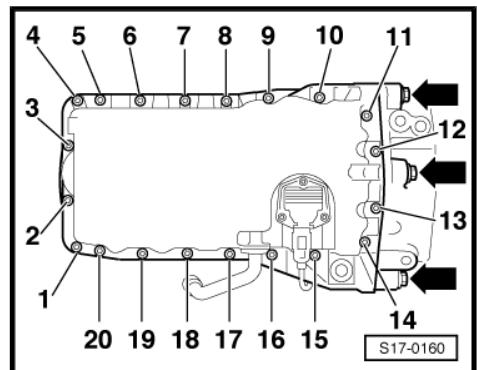
Install

Install in the reverse order of removal. When doing this, note the following:



WARNING

Wear protective gloves when working with sealant and grease remover!

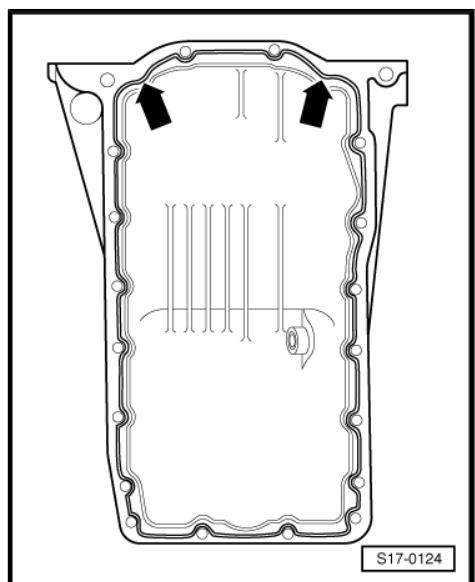


- Clear sealing surface on the oil pan from gasket residues with chemical sealant remover.
- Degrease the sealing surfaces.
- Cut off nozzle tube at the front marking (diameter of nozzle approx. 3 mm).
- Apply silicone sealant bead -arrow- to the clean sealing surface of the oil pan, as shown.
- Thickness of sealant bead: 2-3 mm.



Note

- ◆ *The sealant bead must not be thicker than 3 mm otherwise excess sealant may get into the oil pan and clog the strainer in the oil suction pipe.*
- ◆ *Take particular care when applying sealant bead in the area of the sealing flange at the rear --.*
- ◆ *The oil pan must be installed within 5 minutes after applying the silicone sealant.*





- Fit on oil pan immediately and tighten the bolts as follows:
- First of all tighten screws -1 ... 20- crosswise to 5 Nm.
- Tighten the bolts of the oil pan/gearbox -arrows- to a torque of 45 Nm.
- Unscrew screws -1 ... 20- crosswise to 15 Nm.

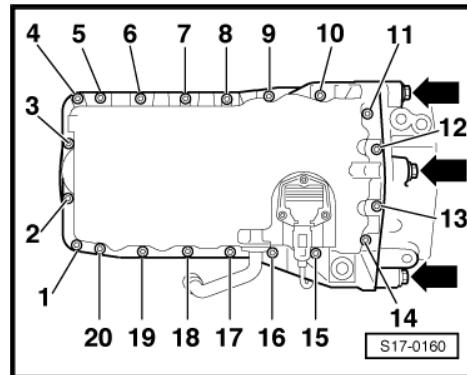
Note

- ◆ When installing the oil pan with the engine removed, ensure that the oil pan is flush with the cylinder block at the flywheel side.
- ◆ After installing the oil pan, allow the sealant to dry for about 30 minutes. Only then may engine oil be filled in.

- Fill with engine oil and check the oil level.

⇒ Maintenance ; Booklet Fabia II .

⇒ Maintenance ; Booklet Roomster .



1.6 Removing and installing oil pump

Removing

- Removing the oil pan:

Fabia II, Roomster

⇒ “1.5 Removing and installing oil pan (Fabia II, Roomster)”, page 180 .

Octavia II, Superb II

⇒ “1.4 Removing and installing oil pan (Octavia II, Superb II)”, page 178 .

- Remove baffle Pos. -12-
 ⇒ “1.1 Lubrication system - Summary of components”, page 172 .
- Release screw -2-.
- Pull the chain sprocket off the oil pump shaft.
- Release screws -1- and -3- and remove oil pump.

Install

Install in the reverse order of removal. When doing this, note the following:

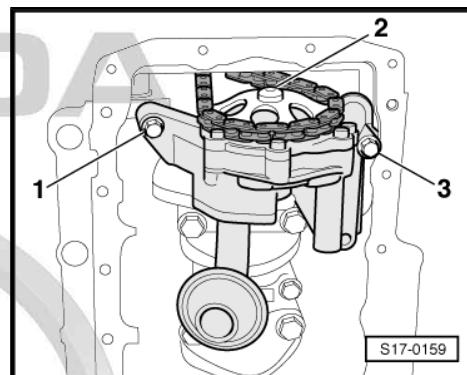
- Insert top dowel sleeves into the oil pump.
- Installation position, oil pump shaft/chain sprocket: The chain sprocket can only be fitted on the shaft in one position only
- Install baffle Pos. -12-
 ⇒ “1.1 Lubrication system - Summary of components”, page 172 and oil pan:

Fabia II, Roomster

⇒ “1.5 Removing and installing oil pan (Fabia II, Roomster)”, page 180 .

Octavia II, Superb II

⇒ “1.4 Removing and installing oil pan (Octavia II, Superb II)”, page 178 .





1.7 Testing oil pressure and oil pressure switch

Special tools and workshop equipment required

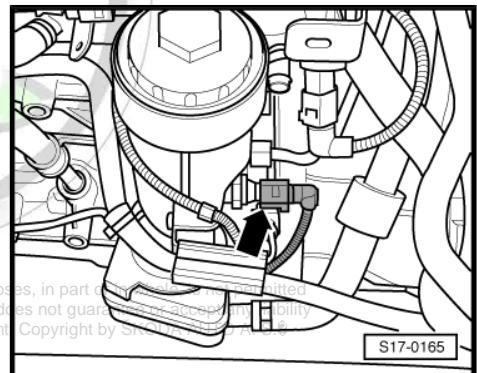
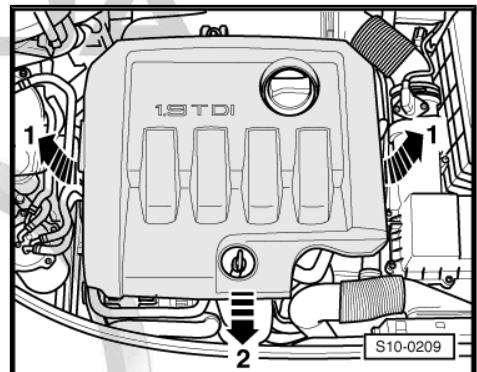
- ◆ Oil pressure tester , e.g. -V.A.G 1342-
- ◆ Voltage tester , e. g. -V.A.G 1527 B-
- ◆ Measuring tool set - V.A.G 1594 C-

Test conditions

- Oil level o.k.
- Engine oil temperature approx. 80 C.

Test preparations

- Lift the engine cover at the sides -arrows 1- and pull out towards the front -arrow 2-.



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- Screw oil pressure switch tester (e.g. -V.A.G 1342-) onto the oil pressure switch bore.
- Screw in oil pressure switch -2- in oil testing device (e.g. -V.A.G 1342-).

Testing oil pressure switch

- Connect brown cable -1- of oil pressure tester to earth (-).
- Unclamp the voltage tester with its auxiliary cables out of the measuring tool set on the oil pressure switch and plus (+) terminal of the battery.
- The LED should not light up.

If the LED lights up:

- Replace oil pressure switch.
- Start engine.



Observe the testing equipment and the LED while actuating the starter since the switching point of the oil pressure switch can already be exceeded when starting up.

- The LED must come on at an overpressure of 0.055 ... 0.085 MPa (0.55 ... 0.85 bar).

If the LED does not light up:

- Replace oil pressure switch.

Testing oil pressure

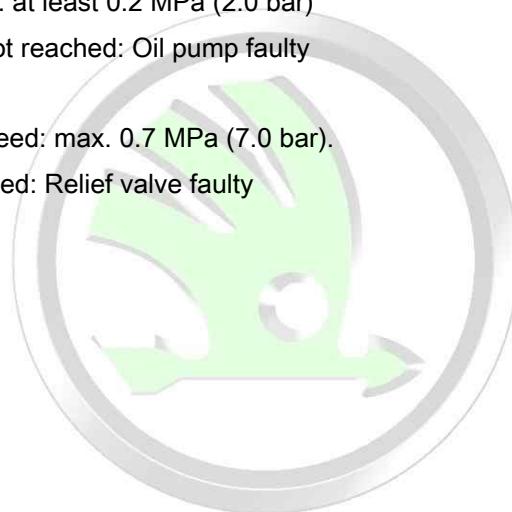
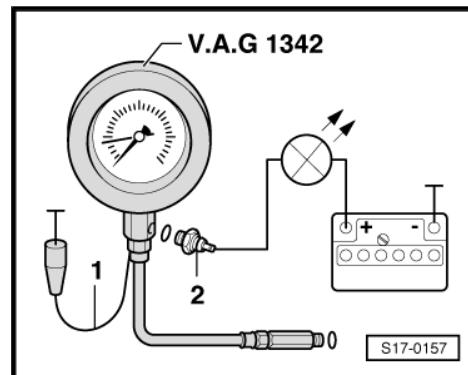
- Start engine.
- Oil pressure in idle: at least 0.08 MPa (0.8 bar)
- Oil pressure at 2000 rpm: at least 0.2 MPa (2.0 bar)

If the specified values are not reached: Oil pump faulty

- Replace oil pump.
- Oil pressure at higher speed: max. 0.7 MPa (7.0 bar).

If the specification is exceeded: Relief valve faulty

- Replace oil filter holder.



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19 – Cooling

1 Cooling system

- ⇒ “1.1 Connection diagram for coolant hoses (Superb II)”,
[page 185](#)
- ⇒ “1.2 Connection diagram for coolant hoses (Octavia II)”,
[page 189](#)
- ⇒ “1.3 Connection diagram for coolant hoses (Fabia II, Roomster)”, [page 193](#)
- ⇒ “1.4 Parts of the cooling system on engine side (Fabia II, Roomster)”, [page 195](#)
- ⇒ “1.5 Parts of cooling system on engine side (Octavia II, Superb II)”, [page 198](#)
- ⇒ “1.6 Drain and fill coolant (Octavia II, Superb II)”, [page 205](#)
- ⇒ “1.7 Draining and filling coolant (Fabia II, Roomster)”,
[page 208](#)
- ⇒ “1.8 Removing and installing coolant pump”, [page 210](#)
- ⇒ “1.9 Removing and installing coolant regulator (Octavia II, Superb II)”, [page 211](#)
- ⇒ “1.10 Removing and installing coolant regulator (Fabia II, Roomster)”, [page 213](#)
- ⇒ “1.11 Checking the coolant system for leaktightness”,
[page 214](#)

1.1 Connection diagram for coolant hoses (Superb II)

- ⇒ “1.1.1 Summary of components for engine with identification characters BXE”, [page 185](#)
- ⇒ “1.1.2 Summary of components for engine with identification characters BLS”, [page 188](#)

1.1.1 **Summary of components for engine with identification characters BXE**

For vehicles without auxiliary heating.

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1 - Radiator

- removing and installing
⇒ “[2.3 Removing and installing radiator \(Octavia II, Superb II\)](#)”, page 222
- fill with fresh coolant after replacing

2 - Engine oil cooler

- fill with fresh coolant after replacing
⇒ “[1.6 Drain and fill coolant \(Octavia II, Superb II\)](#)”, page 205
- removing and installing
⇒ “[1.2 Summary of components - oil filter bracket \(Octavia II, Superb II\)](#)”, page 175

3 - Thermostat

- removing and installing
⇒ “[1.9 Removing and installing coolant regulator \(Octavia II, Superb II\)](#)”, page 211
- test: Heat up regulator in a water bath
- Start of opening approx. 87 °C
- Full opening approx. 102°C
- stroke at least 7 mm

4 - Coolant pump

- removing and installing
⇒ “[1.8 Removing and installing coolant pump](#)”, page 210

5 - Cylinder head/cylinder block

- fill with fresh coolant after replacing ⇒ “[1.6 Drain and fill coolant \(Octavia II, Superb II\)](#)”, page 205

6 - Expansion tank

- with cap
- Testing the pressure relief valve in the cap
⇒ “[1.11 Checking the coolant system for leaktightness](#)”, page 214

7 - Radiator for exhaust gas recirculation

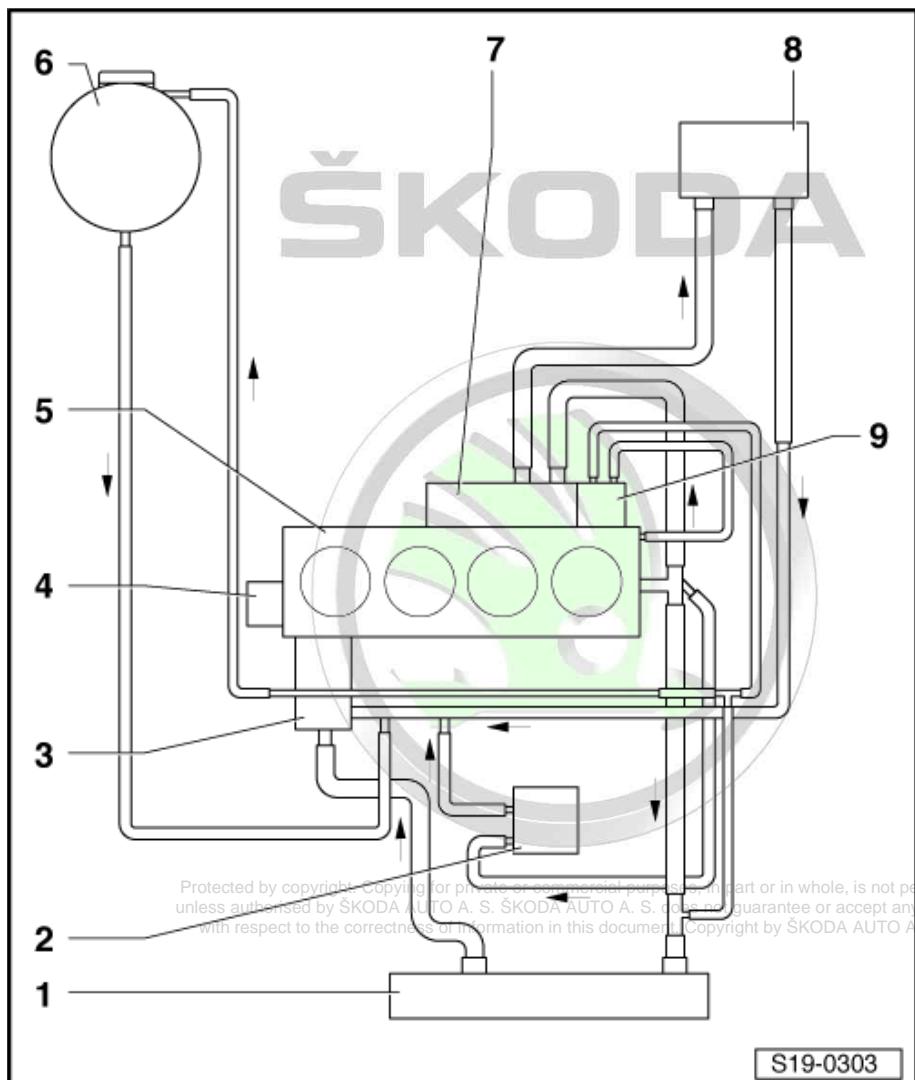
- fill with fresh coolant after replacing
- removing and installing
⇒ “[2.1 Summary of components - cooling for exhaust gas recirculation system \(Octavia II, Superb II\)](#)”, page 412

8 - Heat exchanger of heating system

- fill with fresh coolant after replacing ⇒ “[1.6 Drain and fill coolant \(Octavia II, Superb II\)](#)”, page 205

9 - Radiator flap for exhaust gas recirculation

For vehicles with auxiliary heating



**1 - Radiator**

- removing and installing
⇒ "2.3 Removing and installing radiator (Octavia II, Superb II)", page 222
- fill with fresh coolant after replacing

2 - Engine oil cooler

- fill with fresh coolant after replacing
⇒ "1.6 Drain and fill coolant (Octavia II, Superb II)", page 205
- removing and installing
⇒ "1.2 Summary of components - oil filter bracket (Octavia II, Superb II)", page 175

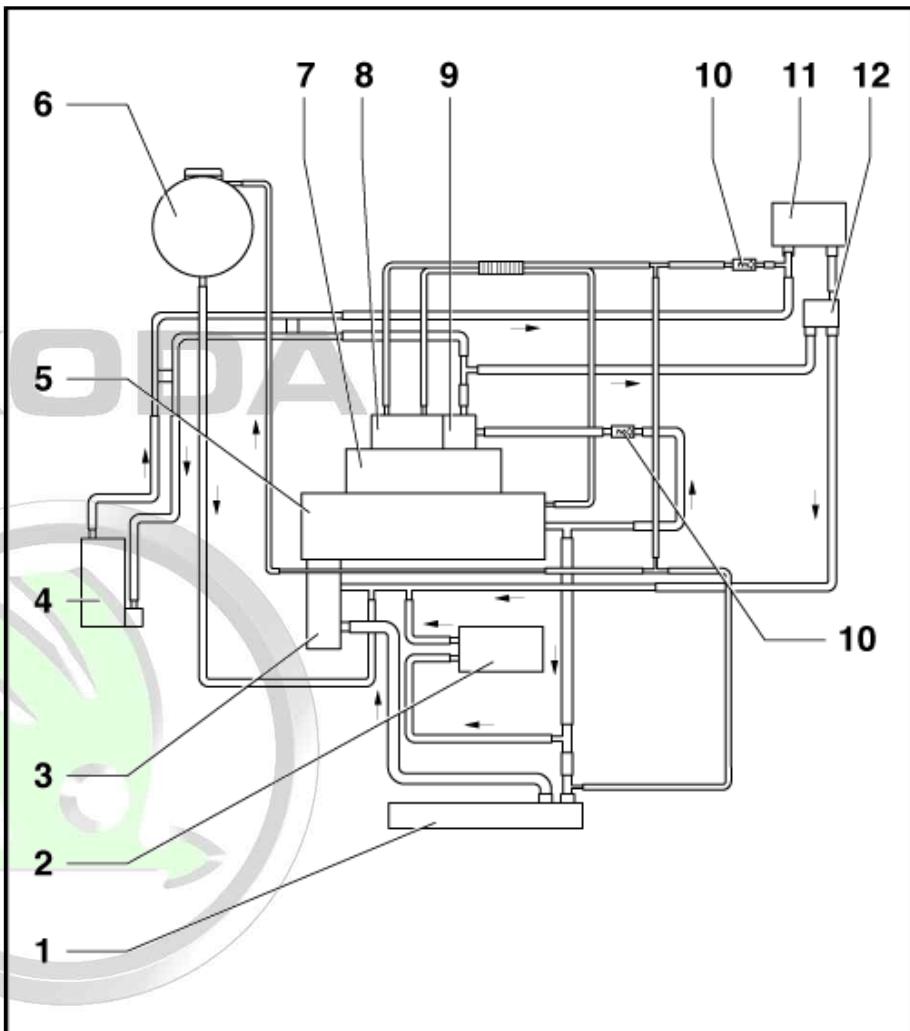
3 - Coolant pump/coolant regulator

- removing and installing
⇒ "1.8 Removing and installing coolant pump", page 210
- Removing and installing coolant regulator
⇒ "1.9 Removing and installing coolant regulator (Octavia II, Superb II)", page 211

4 - Auxiliary heating**5 - Cylinder head/cylinder block**

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- fill with fresh coolant after replacing
⇒ "1.6 Drain and fill coolant (Octavia II, Superb II)", page 205

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**6 - Expansion tank**

- with cap
- Testing the pressure relief valve in the cap
⇒ "1.11 Checking the coolant system for leaktightness", page 214

7 - Intake manifold**8 - Radiator for exhaust gas recirculation**

- fill with fresh coolant after replacing
- removing and installing
⇒ "2.1 Summary of components - cooling for exhaust gas recirculation system (Octavia II, Superb II)", page 412

9 - Radiator flap for exhaust gas recirculation**10 - Non-return valve**

- integrated into the coolant hose
- not always visible from the outside

11 - Heat exchanger of heating system

- fill with fresh coolant after replacing ⇒ "1.6 Drain and fill coolant (Octavia II, Superb II)", page 205

12 - Coolant shut-off valve of the heating system -N279-



1.1.2 Summary of components for engine with identification characters BLS

1 - Expansion tank

- with cap
- Testing the pressure relief valve in the cap
[⇒ "1.11 Checking the coolant system for leak-tightness", page 214](#)

2 - Radiator for exhaust gas recirculation

- fill with fresh coolant after replacing
[⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)
- removing and installing
[⇒ "2.4 Removing and installing radiator for exhaust gas recirculation for engine with engine identification characters BLS \(Octavia II, Superb II\)", page 421](#)

3 - Heat exchanger of heating system

- fill with fresh coolant after replacing
[⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)

4 - Cylinder head/cylinder block

- fill with fresh coolant after replacing
[⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)

5 - Top coolant hose

6 - Engine oil cooler

- fill with fresh coolant after replacing
[⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)
- removing and installing
[⇒ "1.2 Summary of components - oil filter bracket \(Octavia II, Superb II\)", page 175](#)

7 - Radiator

- removing and installing
[⇒ "2.3 Removing and installing radiator \(Octavia II, Superb II\)", page 222](#)
- fill with fresh coolant after replacing
[⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)

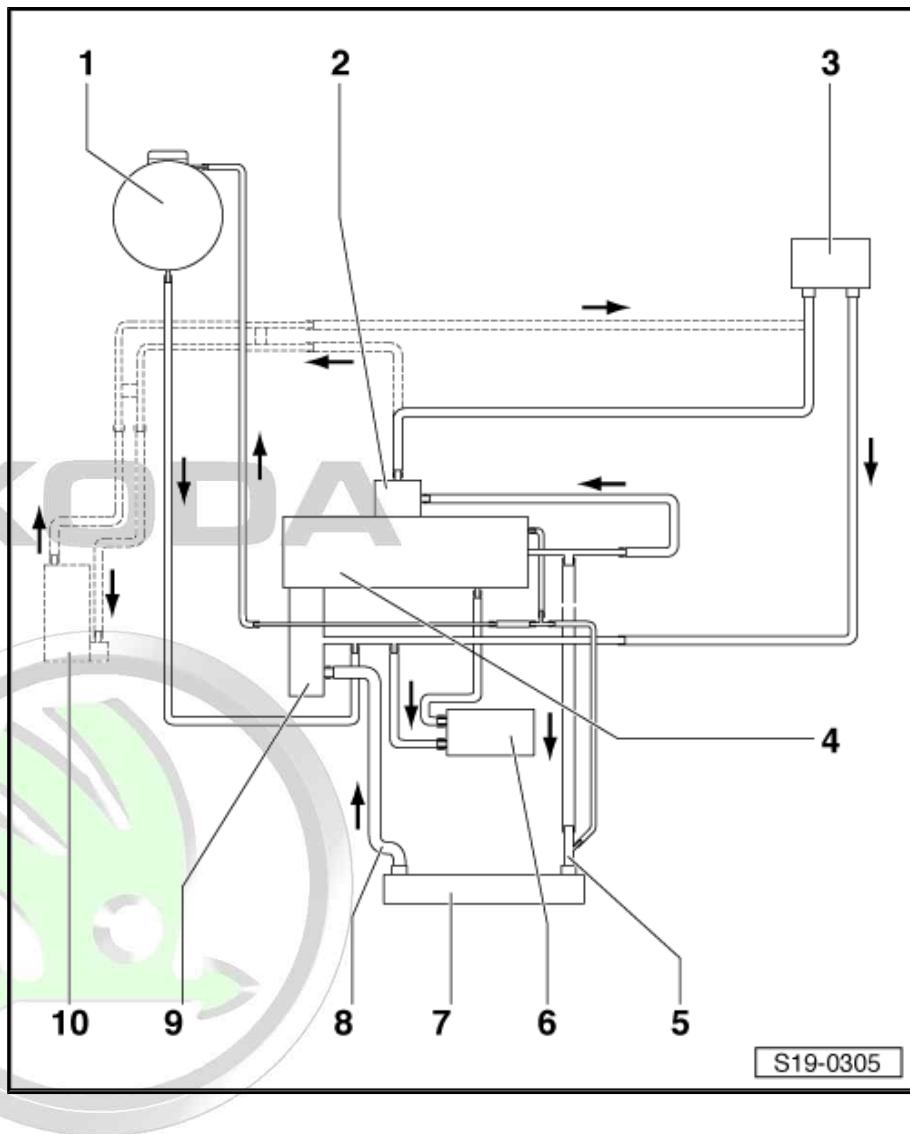
8 - Bottom coolant hose

9 - Coolant pump/coolant regulator

- removing and installing
[⇒ "1.8 Removing and installing coolant pump", page 210](#)
- Removing and installing coolant regulator
[⇒ "1.9 Removing and installing coolant regulator \(Octavia II, Superb II\)", page 211](#)

10 - Auxiliary heating

- only for vehicles with auxiliary heating.



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1.2 Connection diagram for coolant hoses (Octavia II)

⇒ “1.2.1 Engine with identification characters BJB”, page 189

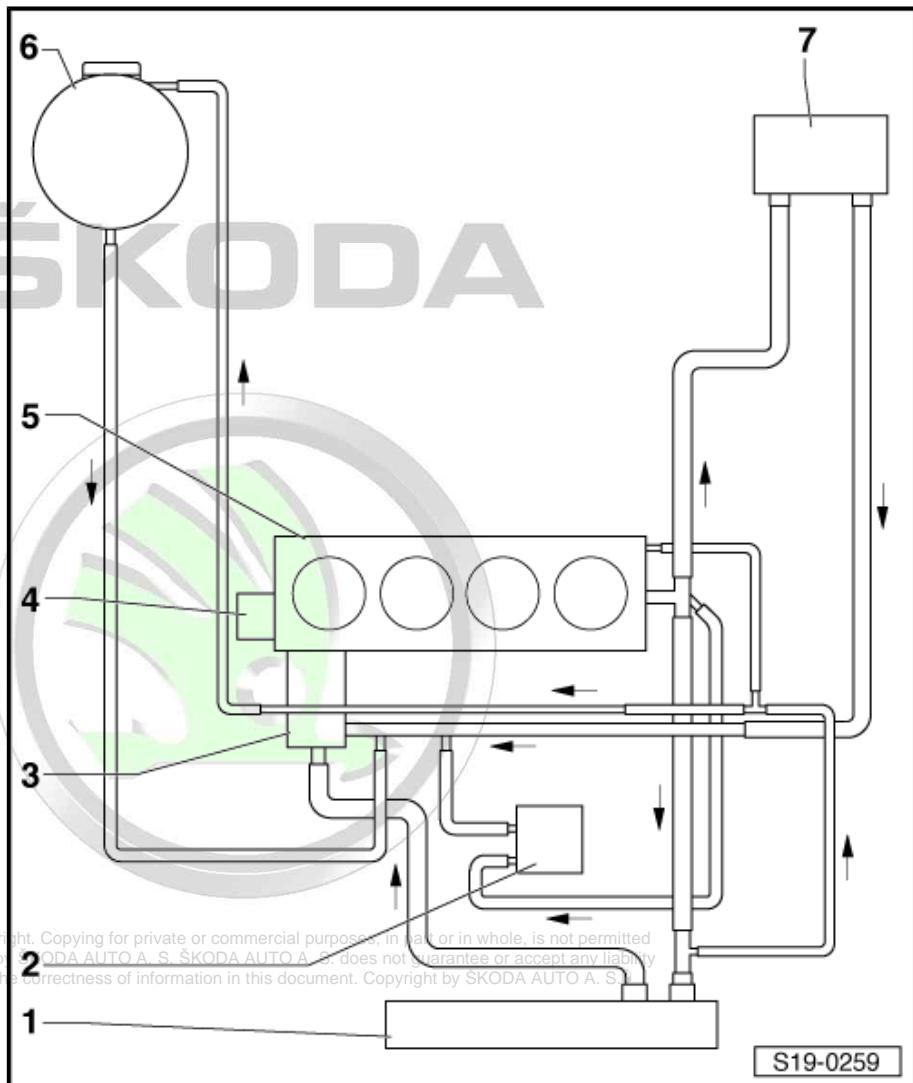
⇒ “1.2.2 Engine with identification characters BKC, BXE”,
page 190

⇒ “1.2.3 Engine with identification characters BLS”, page 192

1.2.1 Engine with identification characters BJB

1 - Radiator

- removing and installing
⇒ “2.3 Removing and installing radiator (Octavia II, Superb II)”,
page 222
- fill with fresh coolant after replacing
⇒ “1.6 Drain and fill coolant (Octavia II, Superb II)”, page 205



2 - Engine oil cooler

- fill with fresh coolant after replacing
⇒ “1.6 Drain and fill coolant (Octavia II, Superb II)”, page 205
- removing and installing
⇒ “1.2 Summary of components - oil filter bracket (Octavia II, Superb II)”, page 175

3 - Thermostat

- removing and installing
⇒ “1.9 Removing and installing coolant regulator (Octavia II, Superb II)”, page 211
- test: Heat up regulator in a water bath
- Start of opening approx. 87 °C
- Full opening approx. 102°C
- stroke at least 7 mm

4 - Coolant pump

- removing and installing ⇒ “1.8 Removing and installing coolant pump”, page 210

5 - Cylinder head/cylinder block

- fill with fresh coolant after replacing ⇒ “1.6 Drain and fill coolant (Octavia II, Superb II)”, page 205

6 - Expansion tank

- with cap
- Testing the pressure relief valve in the cap
⇒ “1.11 Checking the coolant system for leaktightness”, page 214

7 - Heat exchanger of heating system

- fill with fresh coolant after replacing ⇒ “1.6 Drain and fill coolant (Octavia II, Superb II)”, page 205

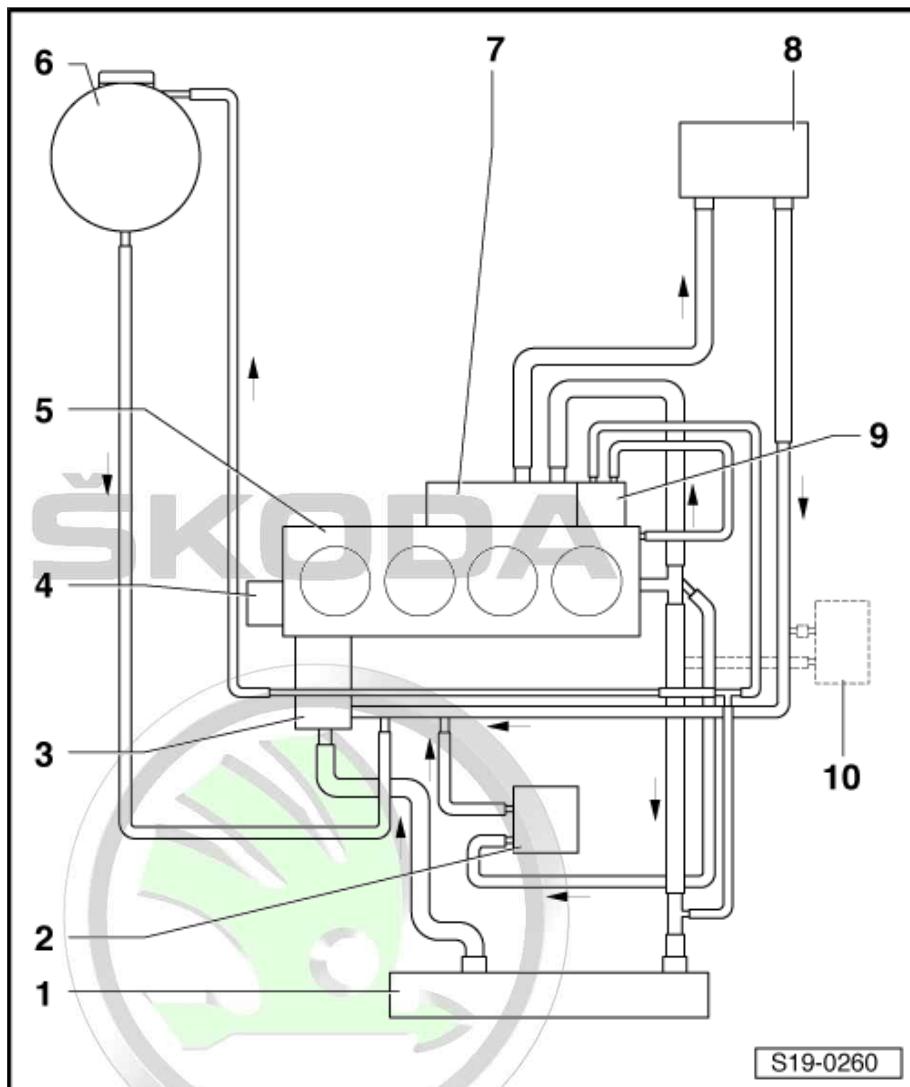


1.2.2 Engine with identification characters BKC, BXE

For vehicles without auxiliary heating.

1 - Radiator

- removing and installing
[⇒ "2.3 Removing and installing radiator \(Octavia II, Superb II\)", page 222](#)
- fill with fresh coolant after replacing
[⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)



2 - Engine oil cooler

- fill with fresh coolant after replacing
[⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)
- removing and installing
[⇒ "1.2 Summary of components - oil filter bracket \(Octavia II, Superb II\)", page 175](#)

3 - Thermostat

- removing and installing
[⇒ "1.9 Removing and installing coolant regulator \(Octavia II, Superb II\)", page 211](#)
- test: Heat up regulator in a water bath
- Start of opening approx. 87 °C
- Full opening approx. 102°C
- stroke at least 7 mm

4 - Coolant pump

- removing and installing [⇒ "1.8 Removing and installing coolant pump", page 210](#)

5 - Cylinder head/cylinder block

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- fill with fresh coolant after replacing [⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)

6 - Expansion tank

- with cap
- Testing the pressure relief valve in the cap
[⇒ "1.11 Checking the coolant system for leaktightness", page 214](#)

7 - Radiator for exhaust gas recirculation

- fill with fresh coolant after replacing [⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)
- removing and installing
[⇒ "2.1.1 Summary of components for engine with identification characters BXE, BKC", page 412](#)

8 - Heat exchanger of heating system

- fill with fresh coolant after replacing [⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)



9 - Radiator flap for exhaust gas recirculation

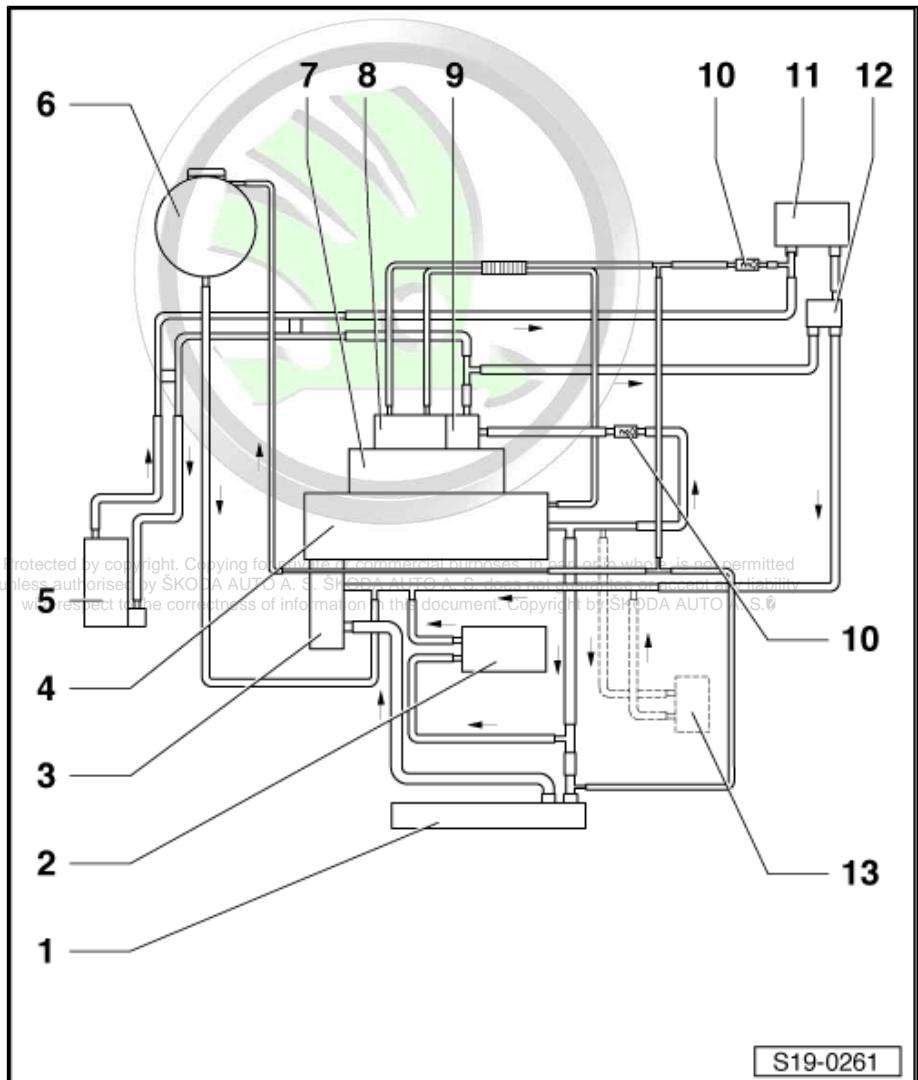
10 - ATF radiator

- for models with an automatic gearbox
- fill with fresh coolant after replacing ⇒ “1.6 Drain and fill coolant (Octavia II, Superb II)”, page 205

For vehicles with auxiliary heating

1 - Radiator

- removing and installing
⇒ “2.3 Removing and installing radiator (Octavia II, Superb II)”, page 222
- fill with fresh coolant after replacing
⇒ “1.6 Drain and fill coolant (Octavia II, Superb II)”, page 205



2 - Engine oil cooler

- fill with fresh coolant after replacing
⇒ “1.6 Drain and fill coolant (Octavia II, Superb II)”, page 205
- removing and installing
⇒ “1.2 Summary of components - oil filter bracket (Octavia II, Superb II)”, page 175

3 - Coolant pump/coolant regulator

- removing and installing
⇒ “1.8 Removing and installing coolant pump”, page 210
- Removing and installing coolant regulator
⇒ “1.9 Removing and installing coolant regulator (Octavia II, Superb II)”, page 211
- test: Heat up regulator in a water bath
- Start of opening approx. 87 °C
- Full opening approx. 102°C
- stroke at least 7 mm

4 - Cylinder head/cylinder block

- fill with fresh coolant after replacing ⇒ “1.6 Drain and fill coolant (Octavia II, Superb II)”, page 205

5 - Auxiliary heating

6 - Expansion tank

- with cap
- Testing the pressure relief valve in the cap
⇒ “1.11 Checking the coolant system for leaktightness”, page 214



7 - Intake manifold

8 - Radiator for exhaust gas recirculation

- fill with fresh coolant after replacing [⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)
- removing and installing
[⇒ "2.1.1 Summary of components for engine with identification characters BXE, BKC ", page 412](#)

9 - Radiator flap for exhaust gas recirculation

10 - Non-return valve

- integrated into the coolant hose
- not always visible from the outside

11 - Heat exchanger of heating system

- fill with fresh coolant after replacing [⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)

12 - Coolant shut-off valve of the heating system -N279-

13 - ATF radiator

- for models with an automatic gearbox
- fill with fresh coolant after replacing [⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)

1.2.3 Engine with identification characters BLS

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1 - Expansion tank

- with cap
- Testing the pressure relief valve in the cap
[⇒ "1.11 Checking the coolant system for leak-tightness", page 214](#)

2 - Radiator for exhaust gas recirculation

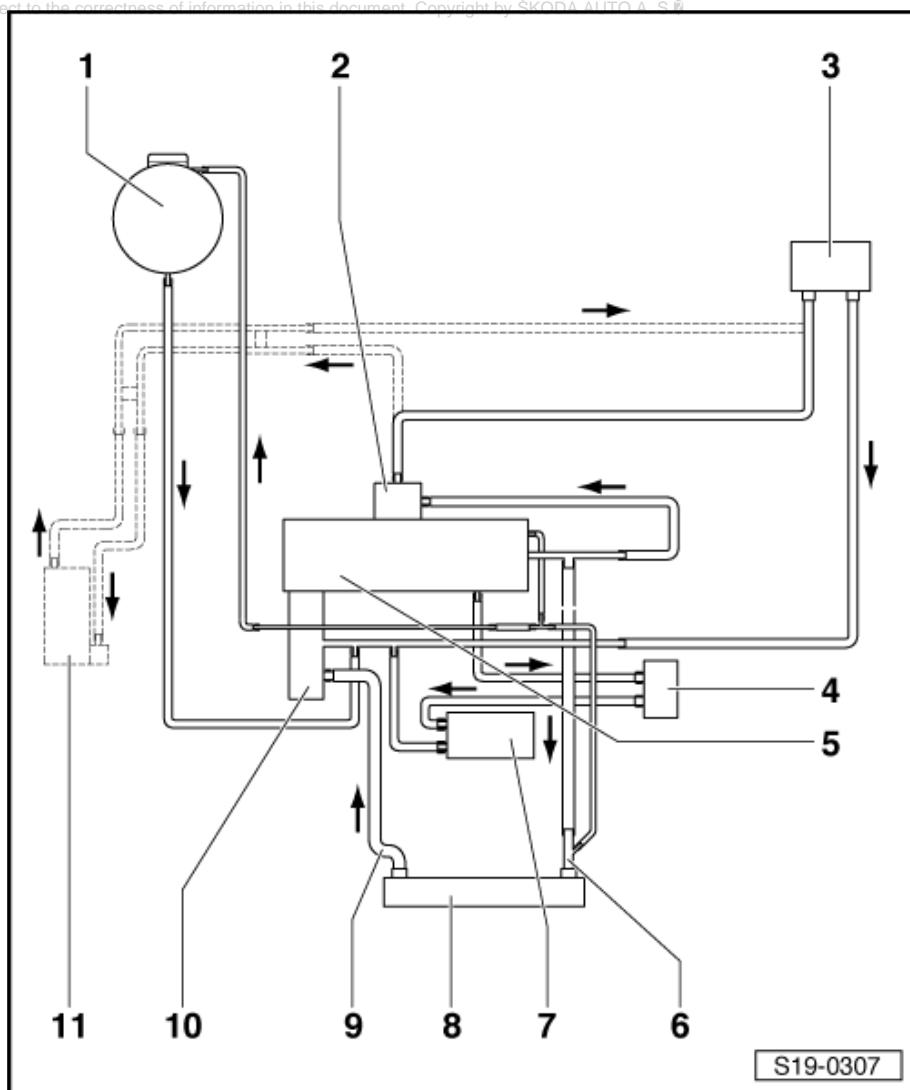
- fill with fresh coolant after replacing
[⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)
- removing and installing
[⇒ "2.4 Removing and installing radiator for exhaust gas recirculation for engine with engine identification characters BLS \(Octavia II, Superb II\)", page 421](#)

3 - Heat exchanger of heating system

- fill with fresh coolant after replacing
[⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)

4 - ATF radiator

- for models with an automatic gearbox
- fill with fresh coolant after replacing
[⇒ "1.6 Drain and fill cool-](#)



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[ant \(Octavia II, Superb II\)", page 205](#)

5 - Cylinder head/cylinder block

- fill with fresh coolant after replacing [⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)

6 - Top coolant hose

7 - Engine oil cooler

- fill with fresh coolant after replacing [⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)
- removing and installing
[⇒ "1.2 Summary of components - oil filter bracket \(Octavia II, Superb II\)", page 175](#)

8 - Radiator

- removing and installing [⇒ "2.3 Removing and installing radiator \(Octavia II, Superb II\)", page 222](#)
- fill with fresh coolant after replacing [⇒ "1.6 Drain and fill coolant \(Octavia II, Superb II\)", page 205](#)

9 - Bottom coolant hose

10 - Coolant pump/coolant regulator

- removing and installing [⇒ "1.8 Removing and installing coolant pump", page 210](#)
- Removing and installing coolant regulator
[⇒ "1.9 Removing and installing coolant regulator \(Octavia II, Superb II\)", page 211](#)

11 - Auxiliary heating

- only for vehicles with auxiliary heating.

1.3 Connection diagram for coolant hoses (Fabia II, Roomster)

[⇒ "1.3.1 Engine with identification characters AXR, BSW", page 194](#)

[⇒ "1.3.2 Engine with identification characters BLS", page 195](#)



1.3.1 Engine with identification characters AXR, BSW

1 - Radiator

- fill with fresh coolant after replacing
[⇒ "1.7 Draining and filling coolant \(Fabia II, Roomster\)", page 208](#)

2 - Engine oil cooler

- fill with fresh coolant after replacing
[⇒ "1.7 Draining and filling coolant \(Fabia II, Roomster\)", page 208](#)

3 - Thermostat

4 - Coolant pump

- removing and installing
[⇒ "1.8 Removing and installing coolant pump", page 210](#)

5 - Cylinder block

- fill with fresh coolant after replacing
[⇒ "1.7 Draining and filling coolant \(Fabia II, Roomster\)", page 208](#)

6 - Expansion tank

- with cap
- Testing the pressure relief valve in the cap
[⇒ "1.11 Checking the coolant system for leak-tightness", page 214](#)

7 - Top coolant pipe

- screwed onto the cylinder head cover

8 - Connection fittings

- at cylinder head

9 - Heat exchanger for heating

- fill with fresh coolant after replacing [⇒ "1.7 Draining and filling coolant \(Fabia II, Roomster\)", page 208](#)

10 - Connection fittings

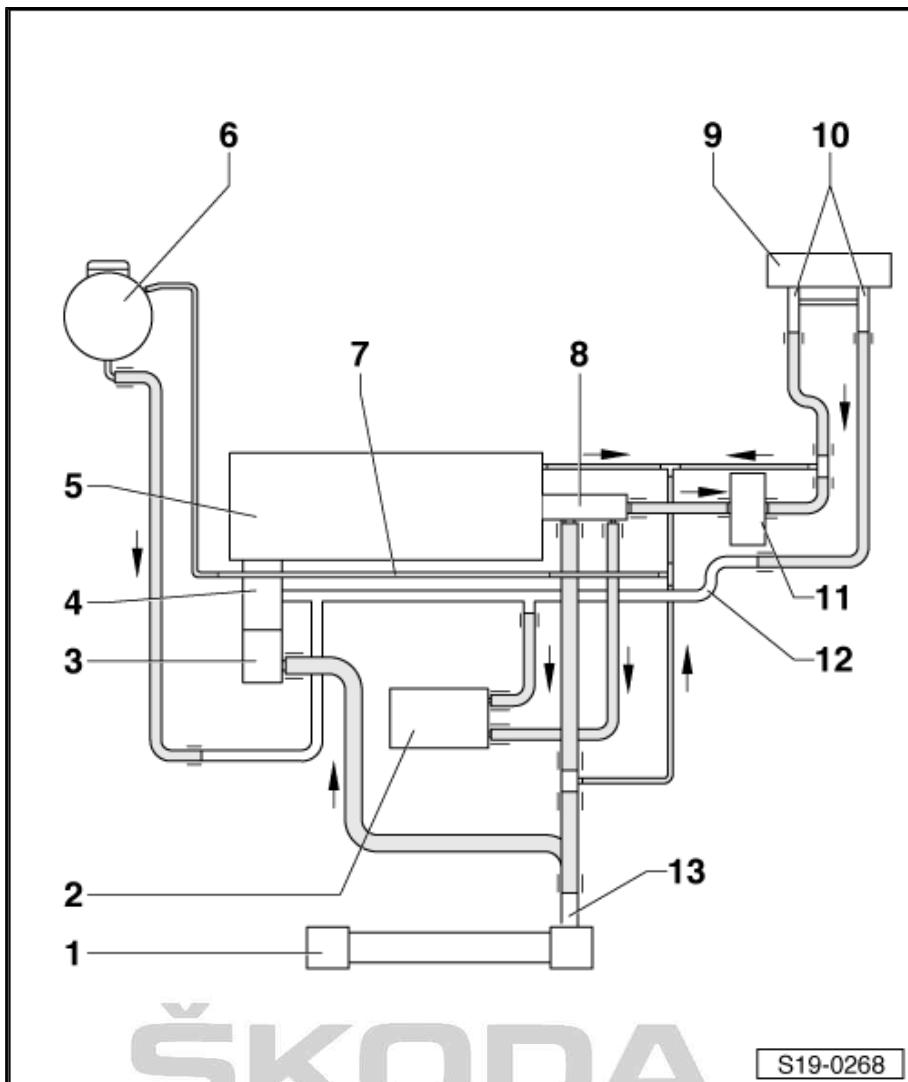
- for heat exchanger

11 - Radiator for exhaust gas recirculation

- fill with fresh coolant after replacing [⇒ "1.7 Draining and filling coolant \(Fabia II, Roomster\)", page 208](#)
- removing and installing
[⇒ "2.5 Removing and installing radiator for exhaust gas recirculation \(Fabia II, Roomster\)", page 422](#)

12 - Coolant pipe

13 - Quick coupling



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1.3.2 Engine with identification characters BLS

1 - Expansion tank

- with cap
- Testing the pressure relief valve in the cap
⇒ [“1.11 Checking the coolant system for leak-tightness”, page 214](#)

2 - Cylinder block

- fill with fresh coolant after replacing
⇒ [“1.7 Draining and filling coolant \(Fabia II, Roomster\)”, page 208](#)

3 - Radiator for exhaust gas recirculation

- fill with fresh coolant after replacing
⇒ [“1.7 Draining and filling coolant \(Fabia II, Roomster\)”, page 208](#)
- removing and installing
⇒ [“2.5 Removing and installing radiator for exhaust gas recirculation \(Fabia II, Roomster\)”, page 422](#)

4 - Connection fittings

- at cylinder head

5 - Quick coupling

6 - Heat exchanger of heating system

- fill with fresh coolant after replacing
⇒ [“1.7 Draining and filling coolant \(Fabia II, Roomster\)”, page 208](#)

7 - Coolant pipe

8 - Engine oil cooler

- fill with fresh coolant after replacing
⇒ [“1.7 Draining and filling coolant \(Fabia II, Roomster\)”, page 208](#)

9 - Radiator

- fill with fresh coolant after replacing
⇒ [“1.7 Draining and filling coolant \(Fabia II, Roomster\)”, page 208](#)

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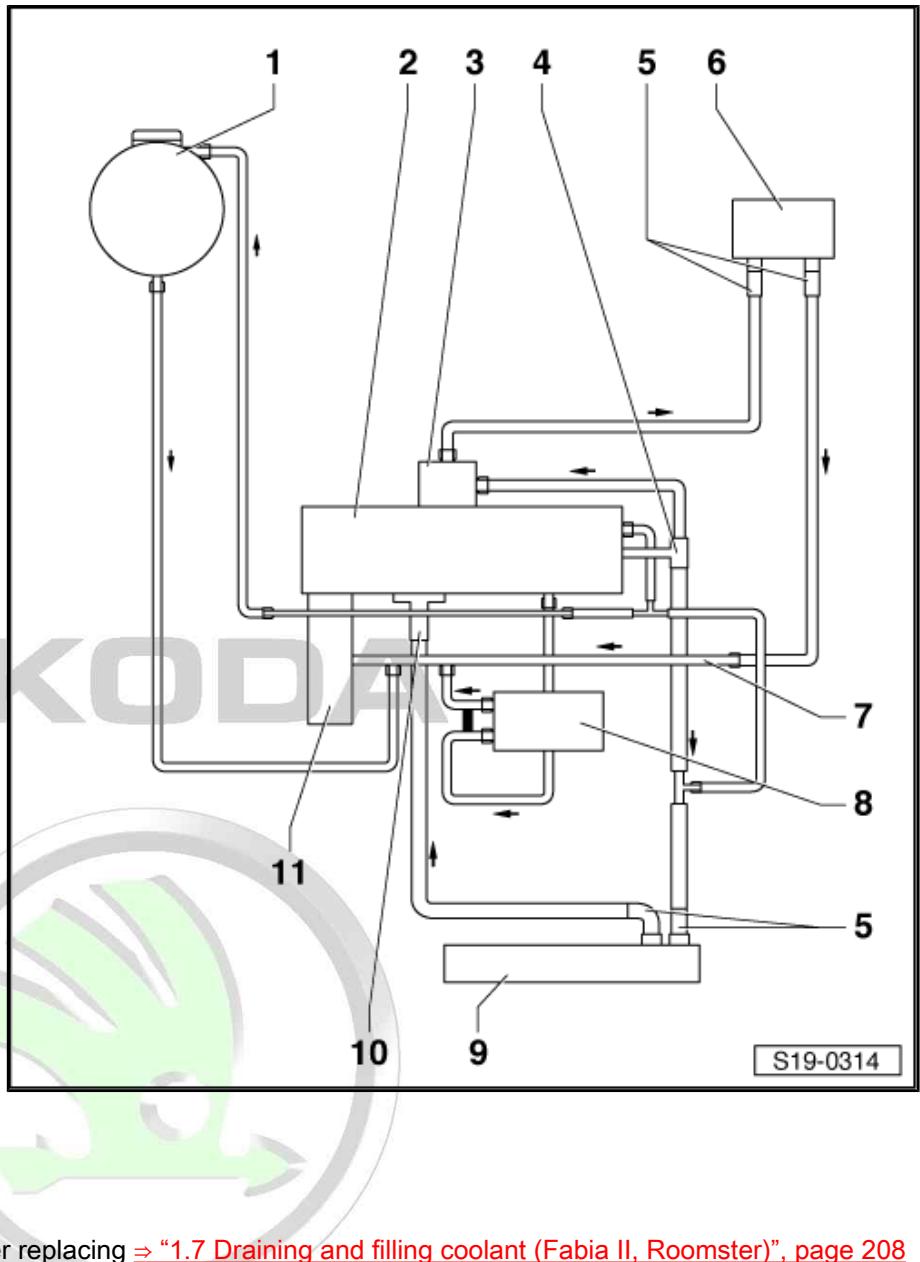
10 - Connection fitting - coolant regulator

- removing and installing
⇒ [“1.8 Removing and installing coolant pump”, page 210](#)

1.4 Parts of the cooling system on engine side (Fabia II, Roomster)

⇒ [“1.4.1 Summary of components for engine with identification characters AXR, BSW”, page 196](#)

⇒ [“1.4.2 Summary of components for engine with identification characters BLS”, page 197](#)





1.4.1 Summary of components for engine with identification characters AXR, BSW

1 - Screw

- 15 Nm

2 - Coolant pump

- check smooth operation
- Check fitting position
- removing and installing
⇒ "1.8 Removing and installing coolant pump", page 210

3 - O-ring

- Replace after disassembly

4 - to the compensation bottle (above)

- connection diagram for coolant hoses
⇒ "1.3 Connection diagram for coolant hoses (Fabia II, Roomster)", page 193

5 - Top coolant pipe

- screwed onto the cylinder head cover

6 - Connection fittings

- for heat exchanger

7 - Distributor part

8 - Coolant temperature sender - G62-

- checking ⇒ Vehicle diagnostic tester.

9 - Retaining clip

- check for firm seating

10 - Sealing ring

- Replace after disassembly
- check tightness

11 - Distributor part

12 - Connection fittings

- at cylinder head

13 - Screw

- 10 Nm

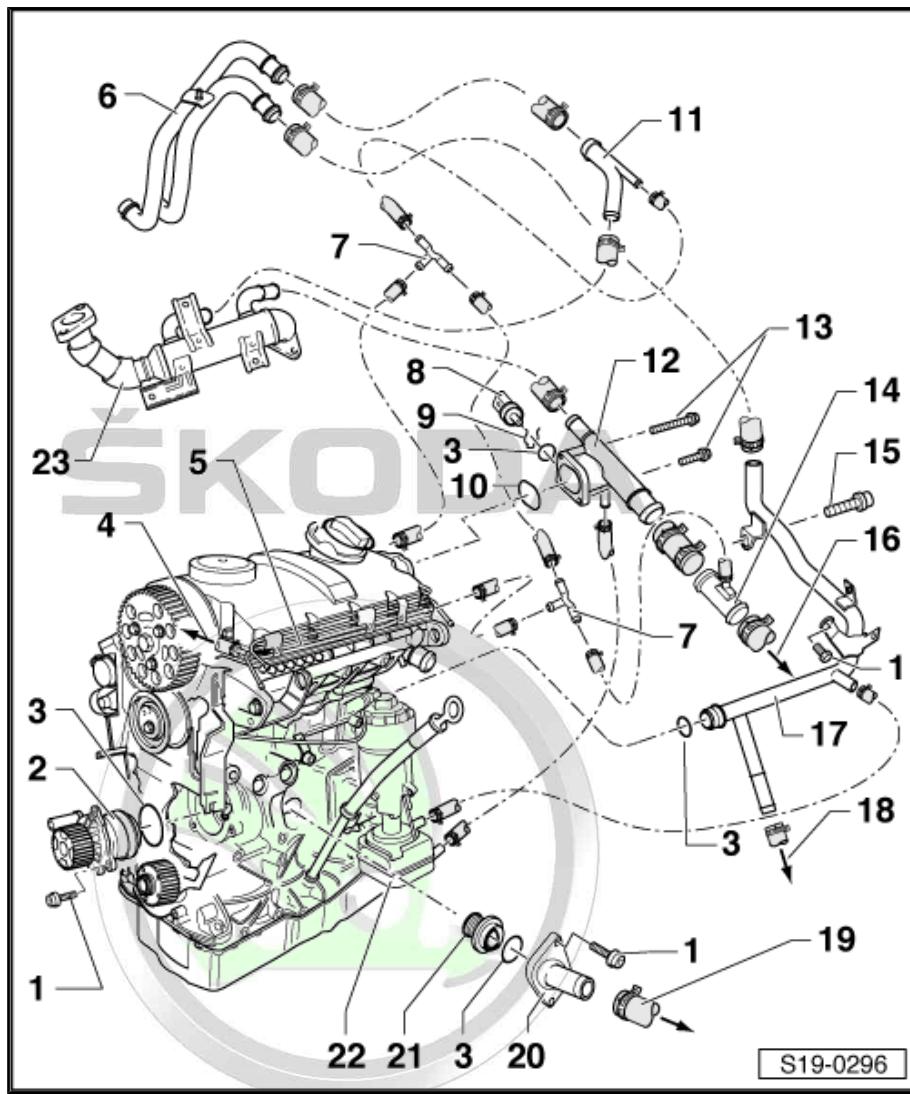
14 - Distributor part

15 - Screw

- 40 Nm

16 - towards top radiator

- connection diagram for coolant hoses
⇒ "1.3 Connection diagram for coolant hoses (Fabia II, Roomster)", page 193



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17 - Coolant pipe

18 - to compensation bottle (bottom)

- connection diagram for coolant hoses
⇒ "1.3 Connection diagram for coolant hoses (Fabia II, Roomster)", page 193

19 - to bottom radiator

- connection diagram for coolant hoses
⇒ "1.3 Connection diagram for coolant hoses (Fabia II, Roomster)", page 193

20 - Connection fittings

- for coolant regulator

21 - Thermostat

- removing and installing
⇒ "1.10 Removing and installing coolant regulator (Fabia II, Roomster)", page 213

22 - Engine oil cooler

- removing and installing
⇒ "1.3 Summary of components - oil filter bracket (Fabia II, Roomster)", page 177

23 - Radiator for exhaust gas recirculation

1.4.2 Summary of components for engine with identification characters BLS

1 - Screw

- 15 Nm

2 - Coolant pump

- check smooth operation
- Check fitting position
- removing and installing
⇒ "1.8 Removing and installing coolant pump", page 210

3 - O-ring

- Replace after disassembly

4 - to the compensation bottle (above)

- connection diagram for coolant hoses
⇒ "1.3 Connection diagram for coolant hoses (Fabia II, Roomster)", page 193

5 - Top coolant pipe

- screwed onto the cylinder head cover

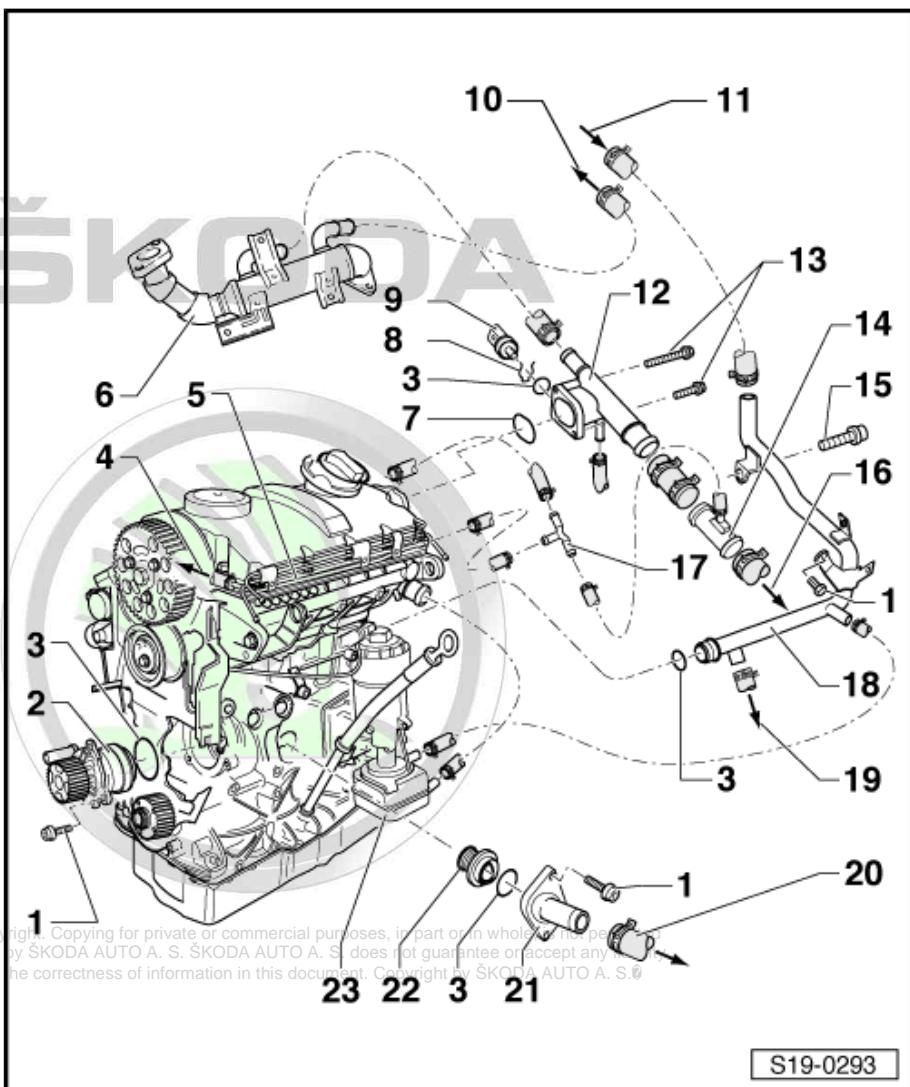
6 - Radiator for exhaust gas recirculation

7 - Sealing ring

- Replace after disassembly
- check tightness

8 - Retaining clip

- check for firm seating





9 - Coolant temperature sender - G62-

- checking ⇒ Vehicle diagnostic tester.

10 - to heat exchanger

11 - from heat exchanger

12 - Connection fittings

- at cylinder head

13 - Screw

- 10 Nm

14 - Distributor part

15 - Screw

- 40 Nm

16 - towards top radiator

- connection diagram for coolant hoses
⇒ "1.3 Connection diagram for coolant hoses (Fabia II, Roomster)", page 193

17 - Distributor part

18 - Coolant pipe

19 - to compensation bottle (bottom)

- connection diagram for coolant hoses
⇒ "1.3 Connection diagram for coolant hoses (Fabia II, Roomster)", page 193

20 - to bottom radiator

- connection diagram for coolant hoses
⇒ "1.3 Connection diagram for coolant hoses (Fabia II, Roomster)", page 193

21 - Connection fittings

- for coolant regulator

22 - Thermostat

- removing and installing
⇒ "1.10 Removing and installing coolant regulator (Fabia II, Roomster)", page 213

23 - Engine oil cooler

- removing and installing
⇒ "1.3 Summary of components - oil filter bracket (Fabia II, Roomster)", page 177

**1.5 Parts of cooling system on engine side
(Octavia II, Superb II)**

⇒ "1.5.1 Summary of components for engine with identification characters BJB", page 199

⇒ "1.5.2 Summary of components for engine with identification characters BKC, BXE", page 201

⇒ "1.5.3 Summary of components for engine with identification characters BLS", page 203

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1.5.1 Summary of components for engine with identification characters BJB

1 - to the compensation bottle above

- Connection diagram for coolant hoses:

Octavia II

⇒ [“1.2 Connection diagram for coolant hoses \(Octavia II\)”, page 189](#)

Superb II

⇒ [“1.1 Connection diagram for coolant hoses \(Superb II\)”, page 185](#)

2 - Top coolant pipe

- screwed onto the cylinder head cover

3 - O-ring

- replace

4 - Retaining clip

- check tightness

5 - Coolant temperature sender-G62-

6 - to heat exchanger

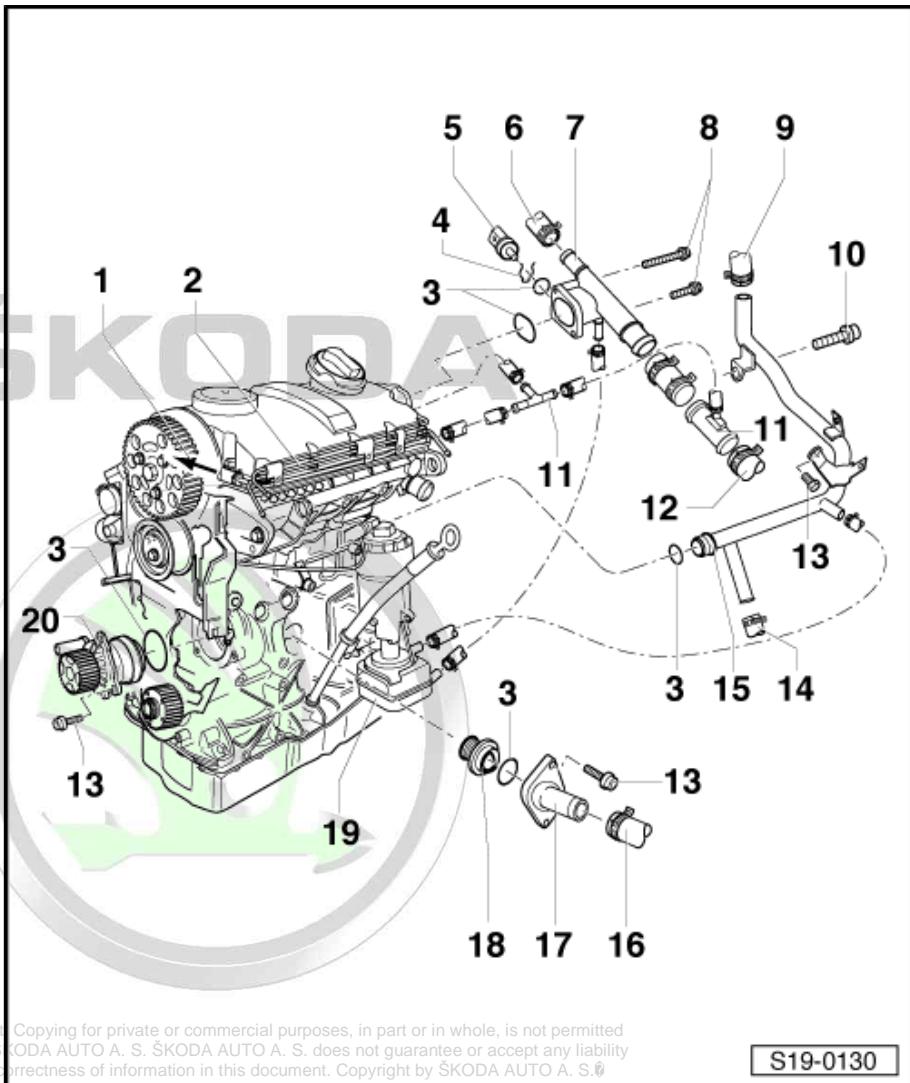
- Feed line
- Connection diagram for coolant hoses:

Octavia II

⇒ [“1.2 Connection diagram for coolant hoses \(Octavia II\)”, page 189](#)

Superb II

⇒ [“1.1 Connection diagram for coolant hoses \(Superb II\)”, page 185](#)



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7 - Connection fittings

- for cylinder head

8 - Screw

- 10 Nm

9 - to heat exchanger

- Return-flow line
- Connection diagram for coolant hoses:

Octavia II ⇒ [“1.2 Connection diagram for coolant hoses \(Octavia II\)”, page 189](#)

Superb II ⇒ [“1.1 Connection diagram for coolant hoses \(Superb II\)”, page 185](#)

10 - Screw

- 40 Nm

11 - Distributor part

12 - towards top radiator

- Connection diagram for coolant hoses:



Octavia II ➤ “1.2 Connection diagram for coolant hoses (Octavia II)”, page 189

Superb II ➤ “1.1 Connection diagram for coolant hoses (Superb II)”, page 185

13 - Screw

- 15 Nm

14 - to bottom compensation bottle

- Connection diagram for coolant hoses:

Octavia II ➤ “1.2 Connection diagram for coolant hoses (Octavia II)”, page 189

Superb II ➤ “1.1 Connection diagram for coolant hoses (Superb II)”, page 185

15 - Coolant pipe

16 - to bottom radiator

- Connection diagram for coolant hoses:

Octavia II ➤ “1.2 Connection diagram for coolant hoses (Octavia II)”, page 189

Superb II ➤ “1.1 Connection diagram for coolant hoses (Superb II)”, page 185

17 - Connection fittings

- for coolant regulator

18 - Thermostat

- removing and installing
⇒ “1.9 Removing and installing coolant regulator (Octavia II, Superb II)”, page 211
- test: Heat up regulator in a water bath
- Start of opening approx. 87 °C
- Full opening approx. 102°C
- stroke at least 7 mm

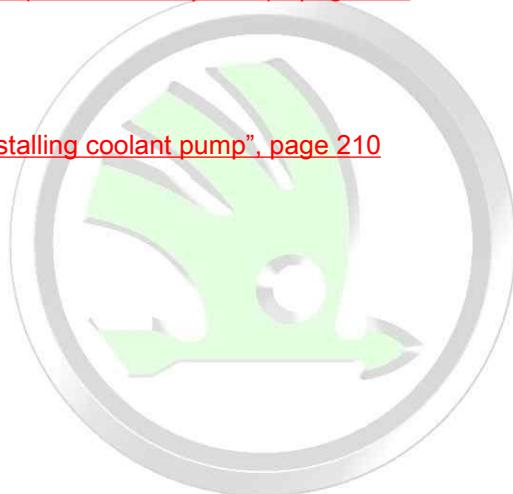


19 - Engine oil cooler

- removing and installing
⇒ “1.2 Summary of components - oil filter bracket (Octavia II, Superb II)”, page 175

20 - Coolant pump

- check smooth operation
- Check fitting position
- removing and installing ⇒ “1.8 Removing and installing coolant pump”, page 210



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1.5.2 Summary of components for engine with identification characters BKC, BXE

1 - Radiator for exhaust gas recirculation

- removing and installing
⇒ [“2.1.1 Summary of components for engine with identification characters BXE, BKC”](#), page 412

2 - to heat exchanger

- Feed line
- Connection diagram for coolant hoses:

Octavia II

⇒ [“1.2 Connection diagram for coolant hoses \(Octavia II\)”](#), page 189

Superb II

⇒ [“1.1 Connection diagram for coolant hoses \(Superb II\)”](#), page 185

3 - to changeover valve of radiator for exhaust gas recirculation

- Connection diagram for coolant hoses:

Octavia II

⇒ [“1.2 Connection diagram for coolant hoses \(Octavia II\)”](#), page 189

Superb II

⇒ [“1.1 Connection diagram for coolant hoses \(Superb II\)”](#), page 185

4 - O-ring

- Replace after disassembly

5 - Retaining clip

- check tightness

6 - Coolant temperature sender -G62-

7 - to radiator for exhaust gas recirculation

- Connection diagram for coolant hoses:

Octavia II ⇒ [“1.2 Connection diagram for coolant hoses \(Octavia II\)”](#), page 189

Superb II ⇒ [“1.1 Connection diagram for coolant hoses \(Superb II\)”](#), page 185

8 - Connection fittings

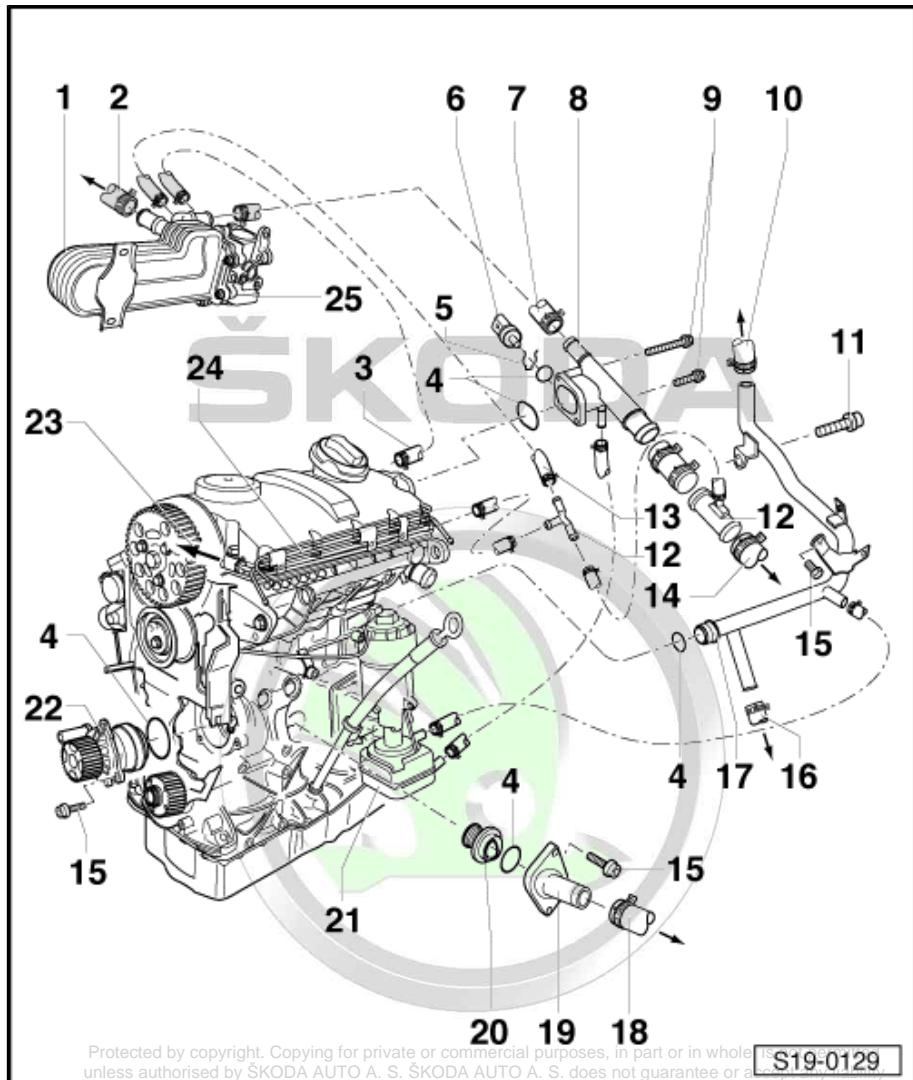
- for cylinder head

9 - Screw

- 10 Nm

10 - to heat exchanger

- Return-flow line
- Connection diagram for coolant hoses:



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Octavia II ⇒ “1.2 Connection diagram for coolant hoses (Octavia II)”, page 189

Superb II ⇒ “1.1 Connection diagram for coolant hoses (Superb II)”, page 185

11 - Screw

- 40 Nm

12 - Distributor part

13 - from changeover valve of radiator for exhaust gas recirculation

- Connection diagram for coolant hoses:

Octavia II ⇒ “1.2 Connection diagram for coolant hoses (Octavia II)”, page 189

Superb II ⇒ “1.1 Connection diagram for coolant hoses (Superb II)”, page 185

14 - towards top radiator

- Connection diagram for coolant hoses:

Octavia II ⇒ “1.2 Connection diagram for coolant hoses (Octavia II)”, page 189

Superb II ⇒ “1.1 Connection diagram for coolant hoses (Superb II)”, page 185

15 - Screw

- 15 Nm

16 - to bottom compensation bottle

- Connection diagram for coolant hoses:

Octavia II ⇒ “1.2 Connection diagram for coolant hoses (Octavia II)”, page 189

Superb II ⇒ “1.1 Connection diagram for coolant hoses (Superb II)”, page 185

17 - Coolant pipe

18 - to bottom radiator

- Connection diagram for coolant hoses:

Octavia II ⇒ “1.2 Connection diagram for coolant hoses (Octavia II)”, page 189

Superb II ⇒ “1.1 Connection diagram for coolant hoses (Superb II)”, page 185

19 - Connection fittings

- for coolant regulator

20 - Thermostat

- removing and installing
⇒ “1.9 Removing and installing coolant regulator (Octavia II, Superb II)”, page 211
- test: Heat up regulator in a water bath
- Start of opening approx. 87 °C
- Full opening approx. 102°C
- stroke at least 7 mm

21 - Engine oil cooler

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- removing and installing
⇒ “1.2 Summary of components - oil filter bracket (Octavia II, Superb II)”, page 175

22 - Coolant pump

- check smooth operation
- Check fitting position
- removing and installing ⇒ “1.8 Removing and installing coolant pump”, page 210

23 - to the compensation bottle above

- Connection diagram for coolant hoses:

Octavia II ⇒ “1.2 Connection diagram for coolant hoses (Octavia II)”, page 189



Superb II ➤ "1.1 Connection diagram for coolant hoses (Superb II)", page 185

24 - Top coolant pipe

- screwed onto the cylinder head cover

25 - Radiator flap for exhaust gas recirculation

- removing and installing

⇒ "2.1.1 Summary of components for engine with identification characters BXE, BKC ", page 412

1.5.3 Summary of components for engine with identification characters BLS

1 - to the compensation bottle above

- Connection diagram for coolant hoses:

Octavia II

⇒ "1.2 Connection diagram for coolant hoses (Octavia II)", page 189

Superb II

⇒ "1.1 Connection diagram for coolant hoses (Superb II)", page 185

2 - Top coolant pipe

- screwed onto the cylinder head cover

3 - O-ring

- Replace after disassembly

4 - Retaining clip

- check tightness

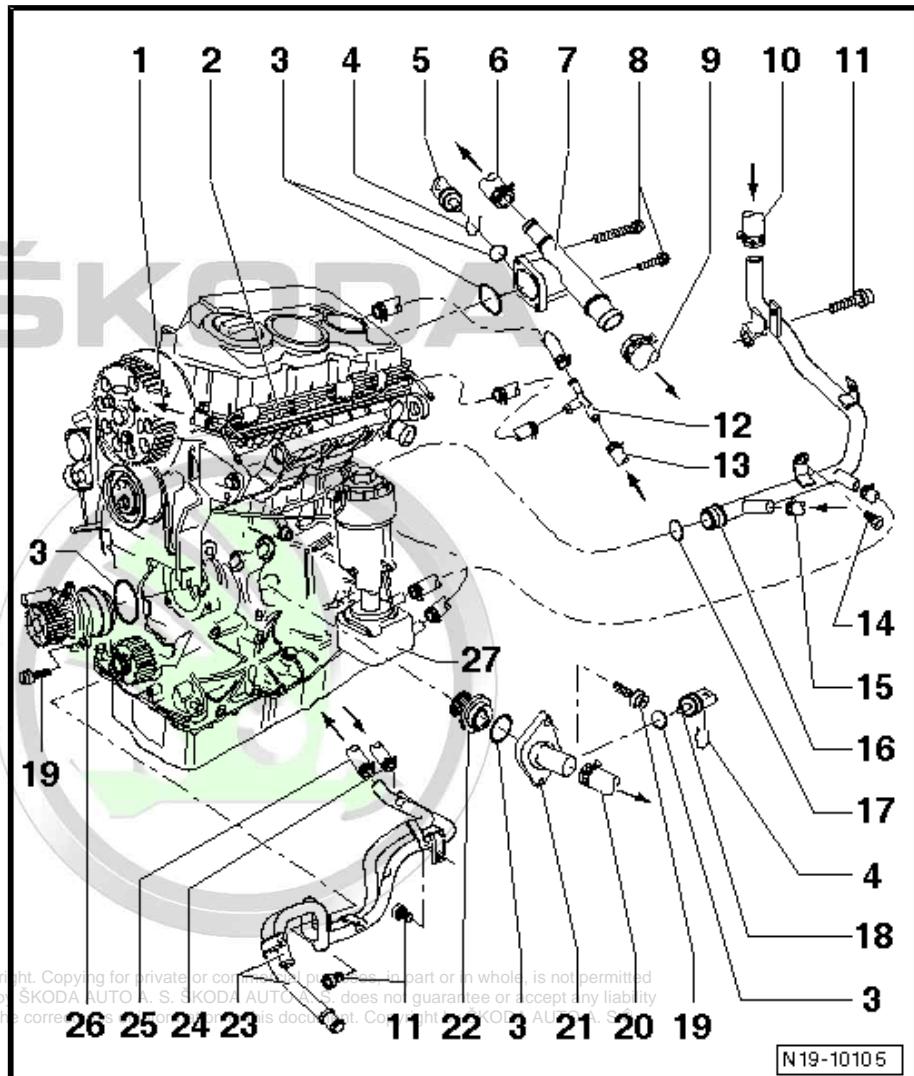
5 - Coolant temperature sender -G62-

6 - to radiator for exhaust gas recirculation

- Connection diagram for coolant hoses:

Octavia II

⇒ "1.2 Connection diagram for coolant hoses (Octavia II)", page 189



N19-10106

Superb II

⇒ "1.1 Connection diagram for coolant hoses (Superb II)", page 185

7 - Connection fittings

- for cylinder head

8 - Screw

- 10 Nm

9 - towards top radiator

- Connection diagram for coolant hoses:

Octavia II ⇒ "1.2 Connection diagram for coolant hoses (Octavia II)", page 189

Superb II ⇒ "1.1 Connection diagram for coolant hoses (Superb II)", page 185



10 - from heat exchanger

- Return-flow line
- Connection diagram for coolant hoses:

Octavia II ➤ “1.2 Connection diagram for coolant hoses (Octavia II)”, page 189

Superb II ➤ “1.1 Connection diagram for coolant hoses (Superb II)”, page 185

11 - Screw

- 40 Nm

12 - Distributor part

13 - from distributor part of top coolant hose

- Connection diagram for coolant hoses:

Octavia II ➤ “1.2 Connection diagram for coolant hoses (Octavia II)”, page 189

Superb II ➤ “1.1 Connection diagram for coolant hoses (Superb II)”, page 185

14 - Screw

- 15 Nm

15 - from the expansion reservoir below

- Connection diagram for coolant hoses:

Octavia II ➤ “1.2 Connection diagram for coolant hoses (Octavia II)”, page 189

Superb II ➤ “1.1 Connection diagram for coolant hoses (Superb II)”, page 185

16 - Coolant pipe

17 - Sealing ring

- Replace after disassembly

18 - Coolant temperature sender at radiator outlet -G83-

19 - Screw

- 15 Nm

20 - to bottom radiator

- Connection diagram for coolant hoses:

Octavia II ➤ “1.2 Connection diagram for coolant hoses (Octavia II)”, page 189

Superb II ➤ “1.1 Connection diagram for coolant hoses (Superb II)”, page 185

21 - Connection fittings

- for coolant regulator

22 - Thermostat

- removing and installing
⇒ “1.9 Removing and installing coolant regulator (Octavia II, Superb II)”, page 211
- test: Heat up regulator in a water bath
- Start of opening approx. 87 °C
- Full opening approx. 102°C
- stroke at least 7 mm

23 - The coolant pipe at the rear

- Connection diagram for coolant hoses:

Octavia II ➤ “1.2 Connection diagram for coolant hoses (Octavia II)”, page 189

Superb II ➤ “1.1 Connection diagram for coolant hoses (Superb II)”, page 185

24 - from radiator for exhaust gas recirculation

- Connection diagram for coolant hoses:





Octavia II ➤ “1.2 Connection diagram for coolant hoses (Octavia II)”, page 189

Superb II ➤ “1.1 Connection diagram for coolant hoses (Superb II)”, page 185

25 - to heat exchanger

- Connection diagram for coolant hoses:

Octavia II ➤ “1.2 Connection diagram for coolant hoses (Octavia II)”, page 189

Superb II ➤ “1.1 Connection diagram for coolant hoses (Superb II)”, page 185

26 - Coolant pump

- check smooth operation
- Check fitting position
- removing and installing ➤ “1.8 Removing and installing coolant pump”, page 210

27 - Engine oil cooler

- removing and installing
➤ “1.2 Summary of components - oil filter bracket (Octavia II, Superb II)”, page 175

1.6 Drain and fill coolant (Octavia II, Superb II)

Special tools and workshop equipment required

- ◆ Catch pan , e.g. -VAS 6208-
- ◆ Pliers for spring strap clamps
- ◆ Refractometer

Draining



Note

Collect drained coolant in a clean container for proper disposal or reuse.



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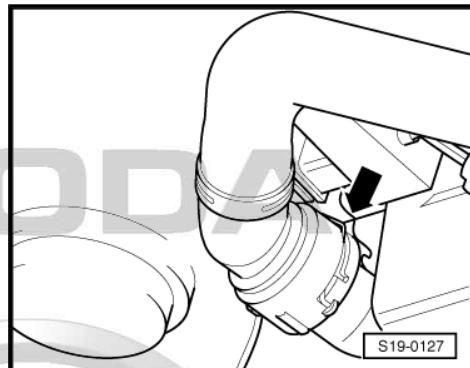
Hot steam or hot coolant may escape when the compensation bottle is opened. Cover the cap with a cloth and open carefully.

- Open the cap of the coolant expansion tank.
- Remove the sound dampening system ➤ Body Work; Rep. gr. 50 .
- Position drip tray e.g. -VAS 6208- under the engine.



For engine with identification characters BXE, BJB, BKC

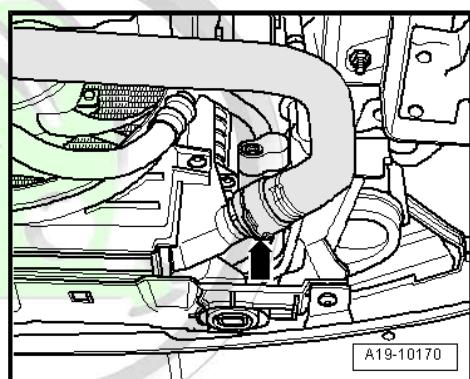
- Remove the coolant hose from the radiator; to do so pull the retaining clip -arrow-.



For engine with engine code BLS

- Remove the coolant hose from the radiator; to do so pull the retaining clip -arrow-.

Continued for all vehicles



- Also remove the coolant hose on the engine oil cooler -arrow- and drain residual coolant.

Vehicles with auxiliary heating.

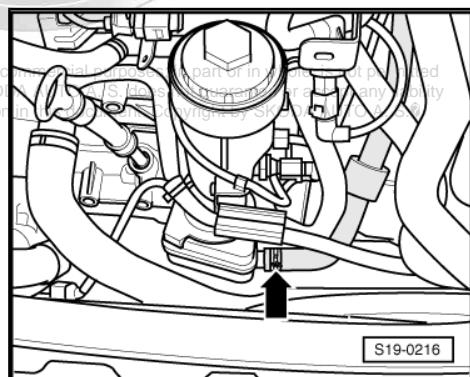
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- Remove the coolant hoses on the pipes of the auxiliary heating and drain residual coolant.

Top up and bleed cooling system.

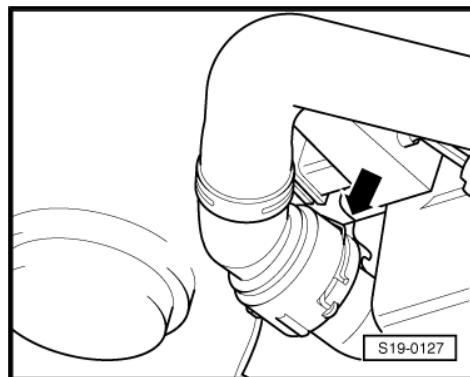


Replace O-rings.



For engine with identification characters BXE, BJB, BKC

- Connect coolant hose at bottom of radiator -arrow-.

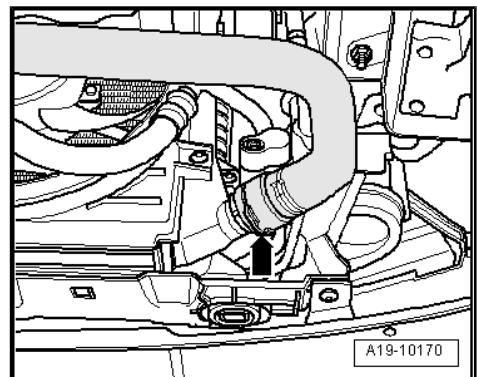




For engine with engine code BLS

- Connect coolant hose at bottom of radiator -arrow-.

Continued for all vehicles



- Connect the coolant hose on the engine oil cooler -arrow-.

Select the appropriate coolant additive from the Electronic Catalogue of Original Parts Škoda or from the list of allowed coolant additives:

◆ ⇒ Maintenance ; Booklet Octavia II .

◆ ⇒ Maintenance ; Booklet Superb II .

- In a clean reservoir, mix distilled water and coolant additive in the specified mixing ratio:

◆ ⇒ Maintenance ; Booklet Octavia II .

◆ ⇒ Maintenance ; Booklet Superb II .

- Top up the coolant system through the connection of the expansion reservoir, until the "Max" marking of the coolant level is reached.

- Start engine, run for not more than 2 minutes at approx. 1500 rpm and while doing so top up coolant in the expansion reservoir.

- Tighten cap at expansion reservoir.

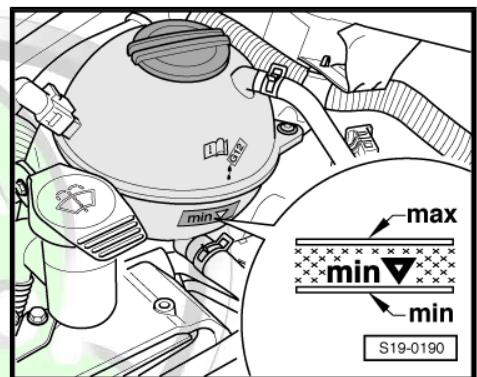
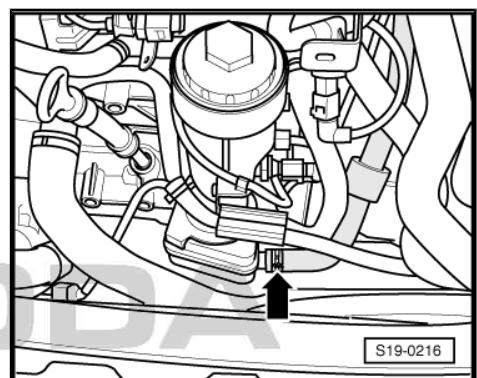
- Then run engine until radiator fan -V7- starts.

Vehicles with auxiliary heating.



Caution

The auxiliary heating must only be switched on, if the refrigerant circuit is filled up -as described below-.



- Connect vehicle diagnosis, measurement and information system -VAS 5051- .
- Start the engine and maintain the engine revolutions for about 3 minutes at about 2000 r.p.m.
- On the display press consecutively the buttons for "Vehicle self-diagnosis", "18 - Auxiliary heating system" and "03 - Actuator diagnosis".
- Press the right arrow on the display so often until the coolant shut-off valve of heating system - N279- is shown.
- Perform self-diagnosis of the coolant shut-off valve of heating system -N279- and maintain the engine speed at approx. 2000 rpm for about 1 minute.

Continued for all vehicles

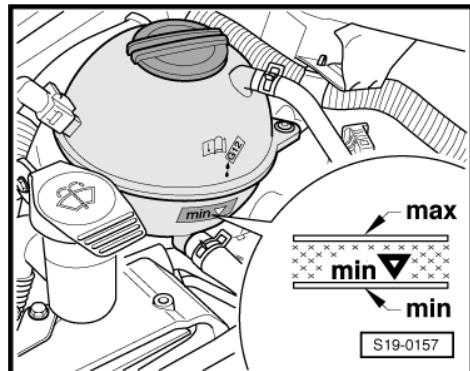


- Check coolant level when the expansion reservoir is closed.
- When engine is at operating temperature the coolant level must be at the "max" marking, when engine is cold between the "min" and "max" markings.



WARNING

Hot steam may escape when the coolant expansion reservoir is opened. Wear safety goggles and safety clothing, in order to avoid eye injuries and scalding. Cover the cap with a cloth and open carefully.



- If necessary, top up with coolant.

1.7 Draining and filling coolant (Fabia II, Roomster)

Special tools and workshop equipment required

- ◆ Catch pan, e.g. -VAS 6208-
- ◆ Pliers for spring strap clamps
- ◆ Refractometer

Draining



Note

Collect drained coolant in a clean container for proper disposal or reuse.

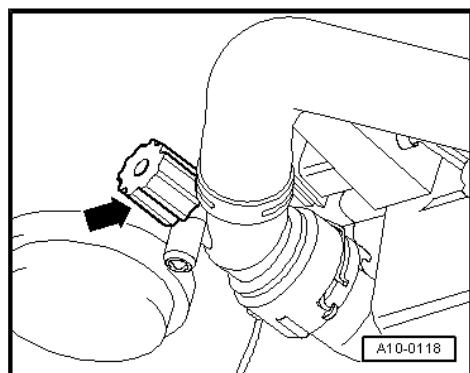


WARNING

Hot steam or hot coolant may escape when the compensation bottle is opened. Cover the cap with a cloth and open carefully.

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- Open the cap of the coolant expansion tank.
- Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
- Position drip (tray e.g. -VAS 6208-) under the engine.
- Turn the drain plug -arrow- on the radiator to the left and to the rear; fit auxiliary hose onto connection if necessary.





- In addition, remove the front coolant hose at the bottom of the engine oil cooler -arrow- and allow remaining coolant to drain.

Note

Observe the disposal instructions for coolant.

Top up and bleed cooling system.

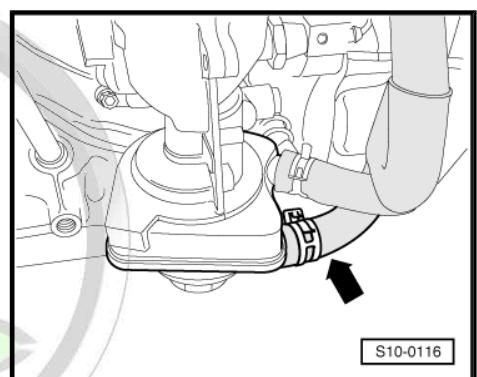
Note

Replace O-rings.



S10-0116

- Fit coolant hose -arrow- onto engine oil cooler.



S10-0116

- Screw in coolant drain screw -arrow-.

Select the appropriate coolant additive from the Electronic Catalogue of Original Parts Škoda or from the list of allowed coolant additives:

- ◆ ⇒ Maintenance ; Booklet Fabia II .
- ◆ ⇒ Maintenance ; Booklet Roomster .
- In a clean reservoir, mix distilled water and coolant additive in the specified mixing ratio:

◆ ⇒ Maintenance ; Booklet Fabia II .

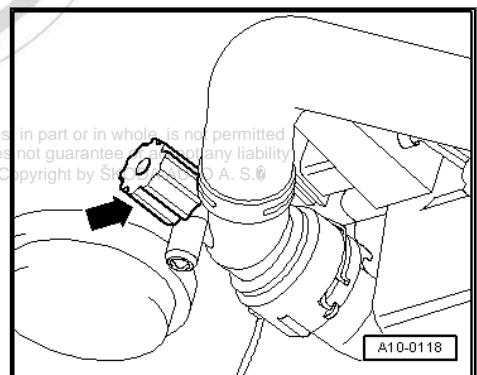
◆ ⇒ Maintenance ; Booklet Roomster .

 - Top up the coolant system through the connection of the expansion reservoir, until the "Max" marking of the coolant level is reached.
 - Seal expansion reservoir.
 - Run engine until fan starts.

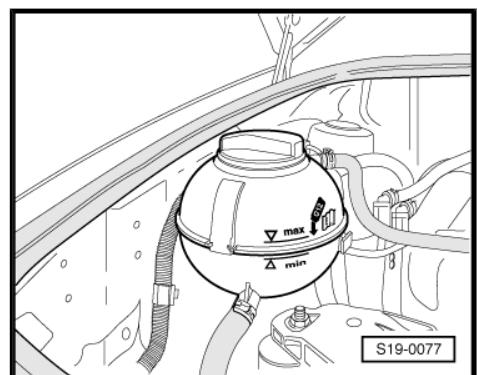


WARNING

Hot steam or hot coolant may escape when the compensation bottle is opened. Cover the cap with a cloth and open carefully.



A10-0118



S19-0077

- Check the level of coolant and top up if necessary. When engine is at operating temperature the coolant level must be at the "max" marking, when engine is cold between the "min" and "max" markings.



1.8 Removing and installing coolant pump

Removing

- Draining coolant:
 - ◆ Fabia II, Roomster
⇒ [“1.7 Draining and filling coolant \(Fabia II, Roomster\)”, page 208](#).
 - ◆ Octavia II, Superb II
⇒ [“1.6 Drain and fill coolant \(Octavia II, Superb II\)”, page 205](#).



Note

Collect drained coolant in a clean container for proper disposal or reuse.

- Removing the toothed belt:
 - ◆ Fabia II, Roomster
⇒ [“1.10 Removing and installing toothed belt \(Fabia II, Roomster\)”, page 67](#).
 - ◆ Octavia II
⇒ [“1.8 Removing and installing toothed belt \(Octavia II\)”, page 57](#).
 - ◆ Superb II
⇒ [“1.6 Removing and installing toothed belt \(Superb II\)”, page 46](#).

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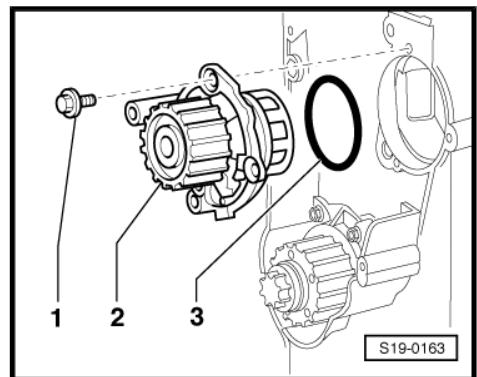
- Unscrew fixing bolts -1- of the coolant pump and remove the coolant pump -2-.
- Remove O-ring -3-.

Install

Install in the reverse order of removal. When doing this, note the following:



Renew O-ring.



- Clean sealing surface for O-ring or smoothen.
- Moisten new O-ring -3- with coolant.
- Position the coolant pump -2- in the cylinder block and tighten the fixing screws -1- to 15 Nm.



The plug of the coolant pump points downwards.

- Install timing belt (set the timing):
 - ◆ Fabia II, Roomster
⇒ “[1.10 Removing and installing toothed belt \(Fabia II, Roomster\)](#)”, page [67](#) .
 - ◆ Octavia II
⇒ “[1.8 Removing and installing toothed belt \(Octavia II\)](#)”, page [57](#) .
 - ◆ Superb II
⇒ “[1.6 Removing and installing toothed belt \(Superb II\)](#)”, page [46](#) .
- Top up with coolant:
 - ◆ Fabia II, Roomster
⇒ “[1.7 Draining and filling coolant \(Fabia II, Roomster\)](#)”, page [208](#) .
 - ◆ Octavia II, Superb II
⇒ “[1.6 Drain and fill coolant \(Octavia II, Superb II\)](#)”, page [205](#) .

1.9 Removing and installing coolant regulator (Octavia II, Superb II)

Special tools and workshop equipment required

- ◆ Catch pan , e.g. -VAS 6208-
- ◆ Pliers for spring strap clamps

Removing



Collect drained coolant in a clean container for proper disposal or reuse.



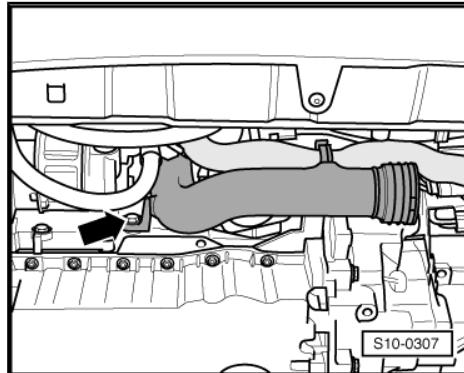
WARNING

Hot steam or hot coolant may escape when the compensation bottle is opened. Cover the cap with a cloth and open carefully.

- Drain coolant
 ⇒ [“1.6 Drain and fill coolant \(Octavia II, Superb II\)”, page 205](#).

For engine with identification characters BJB, BKC, BXE

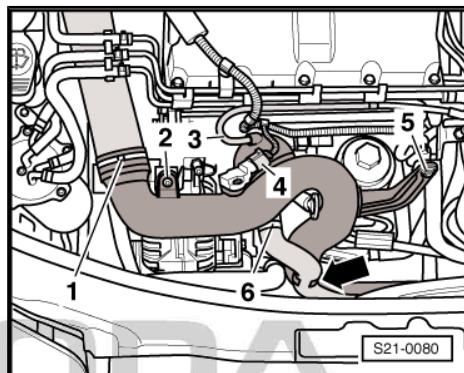
- Unscrew fixing screw -arrow- for front air guide pipe.



- Detach vacuum line -3- at vacuum reservoir.
- Disconnect plug connection -4- at the charge pressure sender -G31- .
- Detach coolant hose -6- from the connection and separate from air guide pipe -arrow-.
- Unscrew screws -2- and -5- and remove air guide pipe, to do so pull retaining clips -1-.

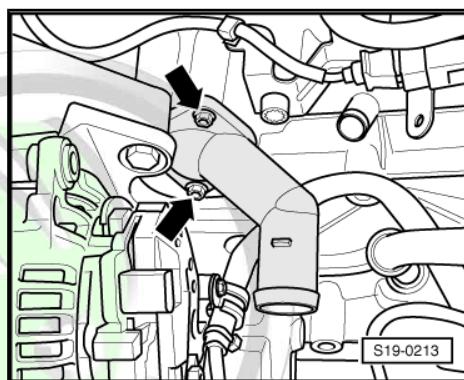
For engine with engine code BLS

- Detach coolant hose from the connection and separate from air guide pipe.



Continued for all vehicles

- Screw out screws -arrows- and remove connection fittings.





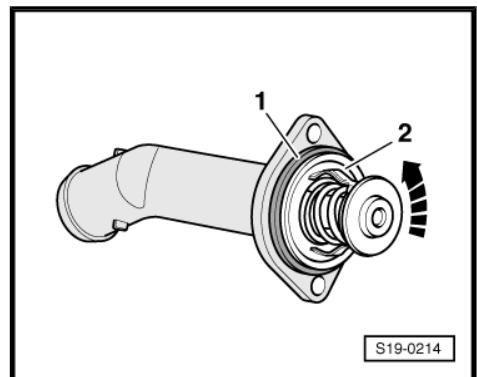
- Turn the coolant thermostat -2- approx. 90° clockwise -arrow- and remove it from the connection fitting.
- Remove O-ring -1-.

Install

Install in the reverse order of removal. When doing this, note the following:

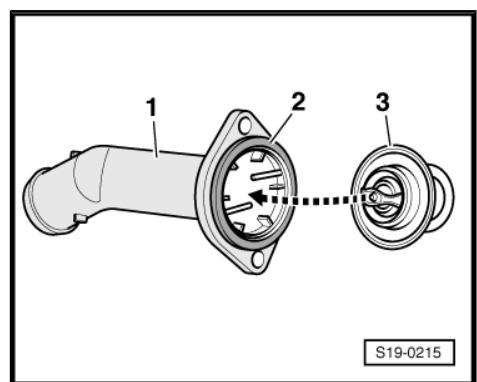


Renew O-ring.



S19-0214

- Clean sealing surface for O-ring or smoothen.
- Fit coolant regulator -3- with new O-ring -2- in the connection fittings -1-.
- When inserting, the coolant regulator clamp must stand horizontally, as shown in the fig.
- Then turn the coolant regulator 90° clockwise.
- Moisten O-ring with coolant.
- Fit connection fitting onto cylinder block and tighten screws to 15 Nm.
- Top up coolant
 ⇒ “1.6 Drain and fill coolant (Octavia II, Superb II)”, page 205 .



S19-0215

1.10 Removing and installing coolant regulator (Fabia II, Roomster)

Special tools and workshop equipment required

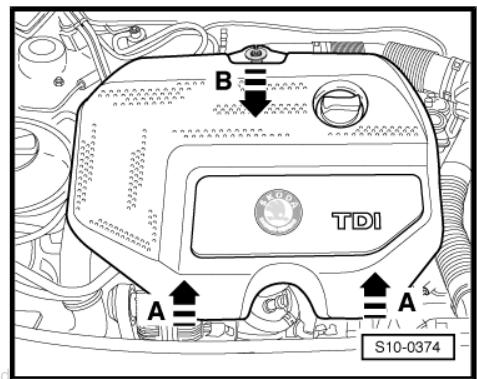
- ◆ Catch pan , e.g. -VAS 6208-
- ◆ Pliers for spring strap clamps

Removing

- Lift the engine cover at the sides -arrows A- and pull out towards the front -arrow B-.
- Drain coolant
 ⇒ “1.7 Draining and filling coolant (Fabia II, Roomster)”, page 208 .



Collect drained coolant in a clean container for proper disposal or reuse.



S10-0374

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- Remove coolant hose from connection fittings -2-.
- Unscrew bolts -1- attaching connection and remove connections -2- together with coolant thermostat -4-.
- Turn coolant regulator -4- 90° to the left and disconnect from the connection fitting -2-.

Install

Installation is carried out in the reverse order. Pay attention to the following:



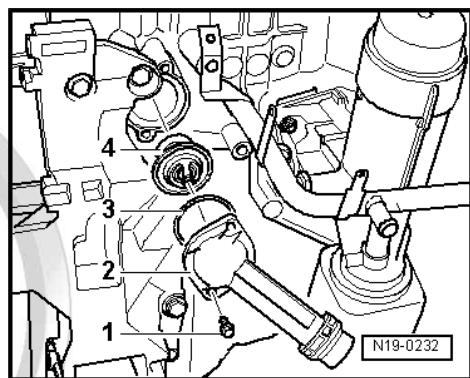
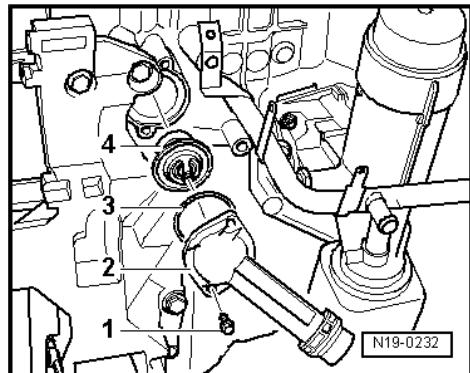
Renew O-ring.

- Clean sealing surface for O-ring or smoothen.
- Moisten new O-ring -3- with coolant and insert on connection fitting -2-.
- Fit coolant regulator -4- in the connection fitting -2- and turn 90° (1/4 turn) to the right.



Coolant thermostat arms must be virtually vertical.

- Insert the connection fitting -2- with coolant regulator -4- in the cylinder block.
- Tighten fixing screws -1- to 15 Nm.
- Top up coolant
⇒ “1.7 Draining and filling coolant (Fabia II, Roomster)”, page 208 .



1.11 Checking the coolant system for leak-tightness

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⇒ “1.11.1 Checking with the cooling system testing device V.A.G 1274 ”, page 214

⇒ “1.11.2 Checking with the cooling system testing device V.A.G 1274 B ”, page 215

1.11.1 Checking with the cooling system testing device - V.A.G 1274-

Special tools and workshop equipment required

- ◆ Cooling system testing device , e.g. -V.A.G 1274-
- ◆ Adapter for cooling system testing device , e.g. -V.A.G 1274/8-
- ◆ Adapter for cooling system testing device , e.g. -V.A.G 1274/9-

Test condition

- Engine is at operating temperature.

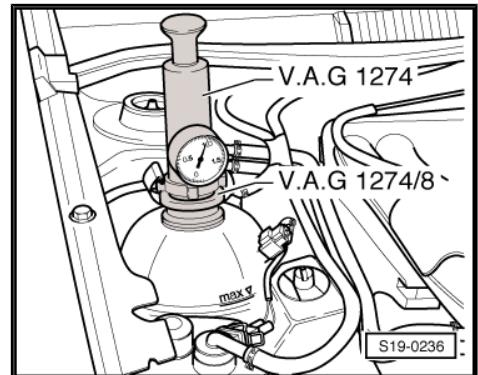
**Test sequence****WARNING**

Hot steam may escape when the coolant expansion reservoir is opened. Wear safety goggles and safety clothing, in order to avoid eye injuries and scalding. Cover the cap with a cloth and open carefully.

- Open compensation bottle.
- Position the cooling system testing device - V.A.G 1274- with adapter - V.A.G 1274/8 - on the coolant expansion reservoir.
- Using the hand pump of the testing device generate an overpressure of approx. 0,1 MPa (1,0 bar).

If the pressure drops:

- Search position of the leak and repair fault.

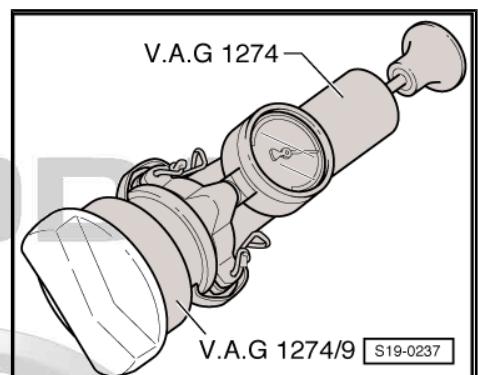
Testing the pressure relief valve in the cap

- Position the cooling system testing device - V.A.G 1274- with adapter - V.A.G 1274/9 - on the cap.
- Operate the handpump.

- The pressure relief valve should open at a pressure of 0.14...0.16 MPa (1.4...1.6 bar).

If the pressure relief valve does not open:

- Replace cap.



1.11.2 Checking with the cooling system testing device - V.A.G 1274 B-

Special tools and workshop equipment required

- ◆ Cooling system testing device , e.g. -V.A.G 1274 B-
- ◆ Adapter , e.g. -V.A.G 1274/8-
- ◆ Adapter , e.g. -V.A.G 1274/9-

Test condition

- Engine is at operating temperature.

Test sequence**WARNING**

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Hot steam or hot coolant may escape when the compensation bottle is opened.

- ◆ Wear safety goggles and safety clothing, in order to avoid eye injuries and scalding.
- ◆ Cover the cap with a cloth and open carefully.



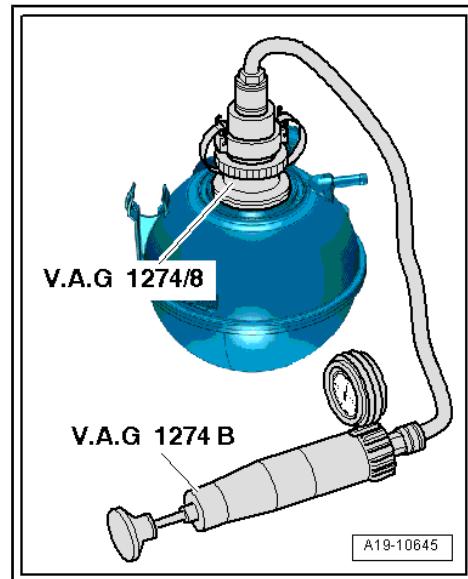
- Open the cap of the coolant expansion tank.
- Screw adapter - V.A.G 1274/8- into the coolant expansion bottle.
- Connect the connecting piece - V.A.G 1274 B/1- to the adapter - V.A.G 1274/8- .
- Connect the connecting piece - V.A.G 1274 B/1- via the delivered connecting hose to the cooling system testing device - V.A.G 1274 B- .
- Using the hand pump of the testing device generate a pressure of approx. 0.1 MPa (1.0 bar).



WARNING

Risk of scalding!

- ◆ Before the cooling system testing device - V.A.G 1274 B- is separated from the connecting hose or the connecting piece - V.A.G 1274 B/1-, the existing pressure must absolutely be released.
- ◆ For this step, press the pressure relief valve on the cooling system testing device - V.A.G 1274 B- until the pressure gauge indicates the value »0«.



If the pressure drops:

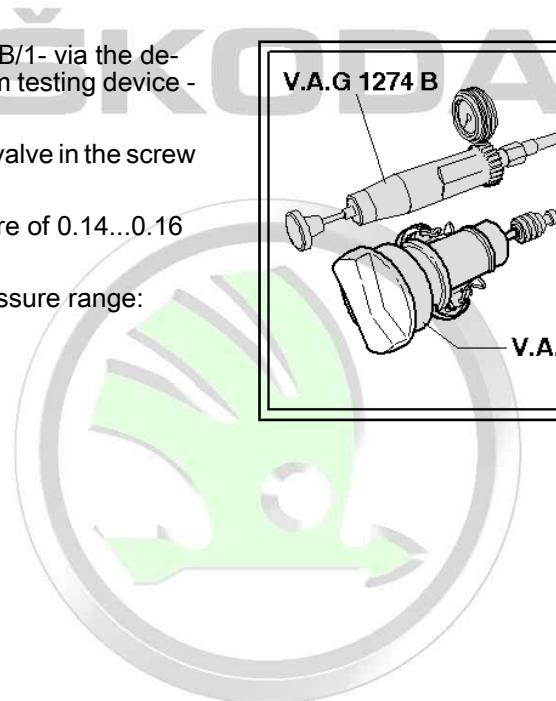
- Search position of the leak and repair fault.

Test the pressure valve in the cap

- Screw the screw cap into the adapter - V.A.G 1274/9- .
- Connect the connecting piece - V.A.G 1274 B/1- to the adapter - V.A.G 1274/9- .
- Connect the connecting piece - V.A.G 1274 B/1- via the delivered connecting hose to the cooling system testing device - V.A.G 1274 B- .
- Generate a pressure for testing the pressure valve in the screw cap.
- The pressure valve should open at a pressure of 0.14...0.16 MPa (1.4...1.6 bar).

If the valve does not open in the prescribed pressure range:

- Replace cap.





2 Radiator and radiator fan

⇒ “[2.1 Parts of cooling system on body side \(Octavia II, Superb II\)](#)”, page 217

⇒ “[2.2 Parts of cooling system on body side \(Fabia II, Roomster\)](#)”, page 220

⇒ “[2.3 Removing and installing radiator \(Octavia II, Superb II\)](#)”, page 222

⇒ “[2.4 Removing and installing radiator \(Fabia II, Roomster\)](#)”, page 223

⇒ “[2.5 Removing and installing fan shroud for radiator fan V7 and V177 \(Octavia II, Superb II\)](#)”, page 225

2.1 Parts of cooling system on body side (Octavia II, Superb II)

⇒ “[2.1.1 Summary of components for engine with engine identification characters BJB, BKC, BXE](#)”, page 217

⇒ “[2.1.2 Summary of components for engine with identification characters BLS](#)”, page 219

2.1.1 Summary of components for engine with engine identification characters BJB, BKC, BXE



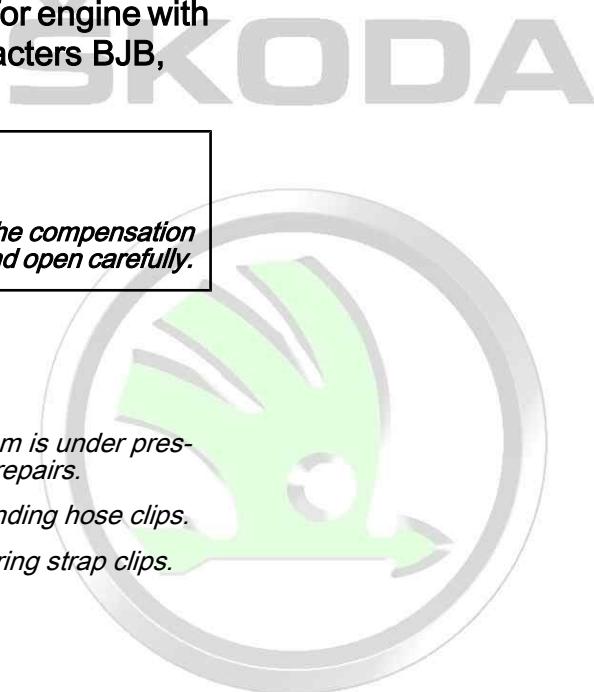
WARNING

Hot steam or hot coolant may escape when the compensation bottle is opened. Cover the cap with a cloth and open carefully.



Note

- ◆ When the engine is warm the cooling system is under pressure. If necessary reduce pressure before repairs.
- ◆ Secure all hose connections with corresponding hose clips.
- ◆ Use pliers for spring strap clips to fit the spring strap clips.
- ◆ Always replace seals and gasket rings.



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1 - Top coolant hose

- To connection fitting at cylinder head

2 - O-ring

- Replace after disassembly

3 - Radiator

- removing and installing
[⇒ "2.3 Removing and installing radiator \(Octavia II, Superb II\)", page 222](#)

- after replacing fill entire system with fresh coolant

4 - Gasket

5 - Screw cap

6 - Connector

7 - Screw

- 2 Nm

8 - Expansion tank

- Check the cooling system for tightness
[⇒ "1.11 Checking the coolant system for leak-tightness", page 214](#)

- Test pressure
 0.14...0.16 MPa
 (1.4...1.6 bar)

9 - Screw

- 5 Nm

10 - Nut

- 10 Nm

11 - Radiator fan 2 - V35-

- removing and installing: Octavia II, Superb II
[⇒ "2.5 Removing and installing fan shroud for radiator fan V7 and V177 \(Octavia II, Superb II\)", page 225](#)

12 - Radiator fan - V7-

- with radiator fan control unit -J293-
- removing and installing
[⇒ "2.5 Removing and installing fan shroud for radiator fan V7 and V177 \(Octavia II, Superb II\)", page 225](#)

13 - Fan shroud

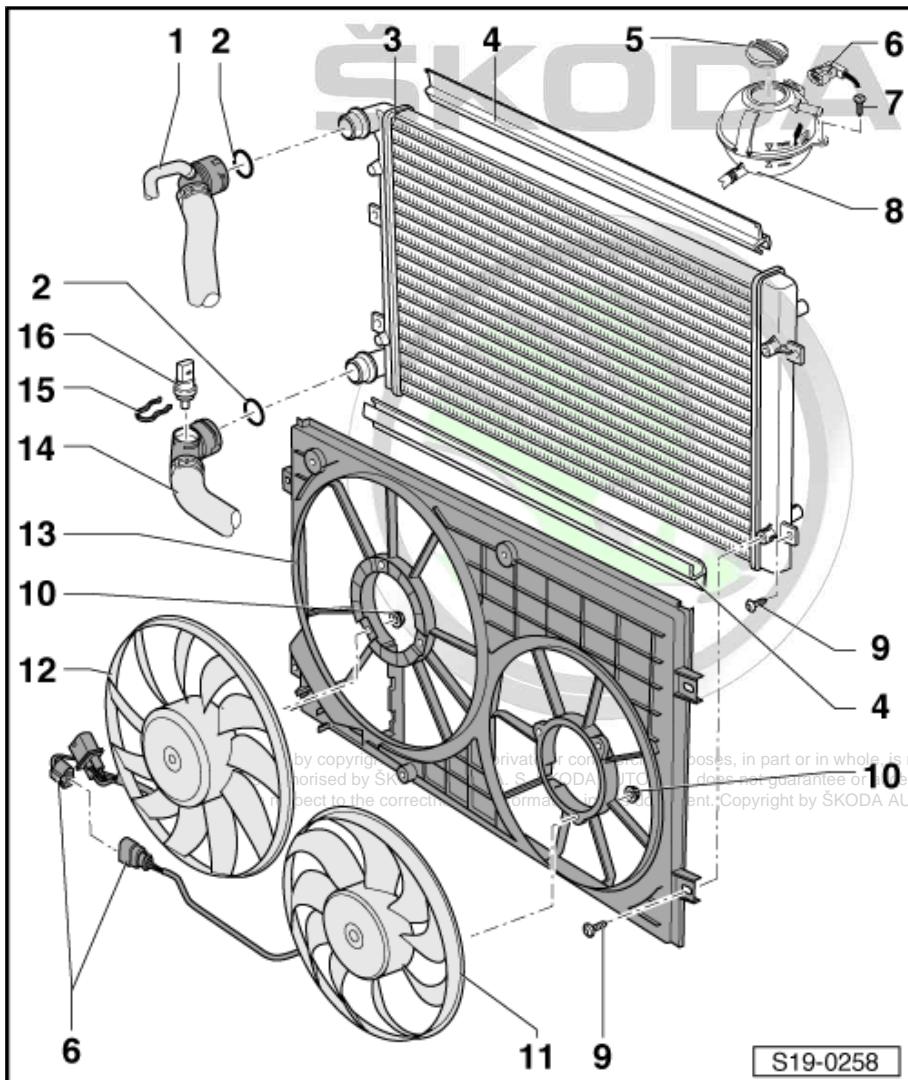
14 - Bottom coolant hose

- To connection fitting at coolant regulator

15 - Retaining clip

16 - Coolant temperature sender at radiator outlet - G83-

- replace the O-ring if it is damaged



S19-0258



2.1.2 Summary of components for engine with identification characters BLS



WARNING

Hot steam or hot coolant may escape when the compensation bottle is opened. Cover the cap with a cloth and open carefully.



Note

- ◆ When the engine is warm the cooling system is under pressure. If necessary reduce pressure before repairs.
- ◆ Secure all hose connections with corresponding hose clips.
- ◆ Use pliers for spring strap clips to fit the spring strap clips.
- ◆ Always replace seals and gasket rings.

1 - Radiator fan - V7-

- with radiator fan control unit -J293-
- removing and installing
⇒ "2.5 Removing and installing fan shroud for radiator fan V7 and V177 (Octavia II, Superb II)", page 225

2 - Nut

- 10 Nm

3 - Fan shroud

4 - Top coolant hose

- To connection fitting at cylinder head
- Connection diagram for coolant hoses:

Octavia II

⇒ "1.2 Connection diagram for coolant hoses (Octavia II)", page 189

Superb II

⇒ "1.1 Connection diagram for coolant hoses (Superb II)", page 185

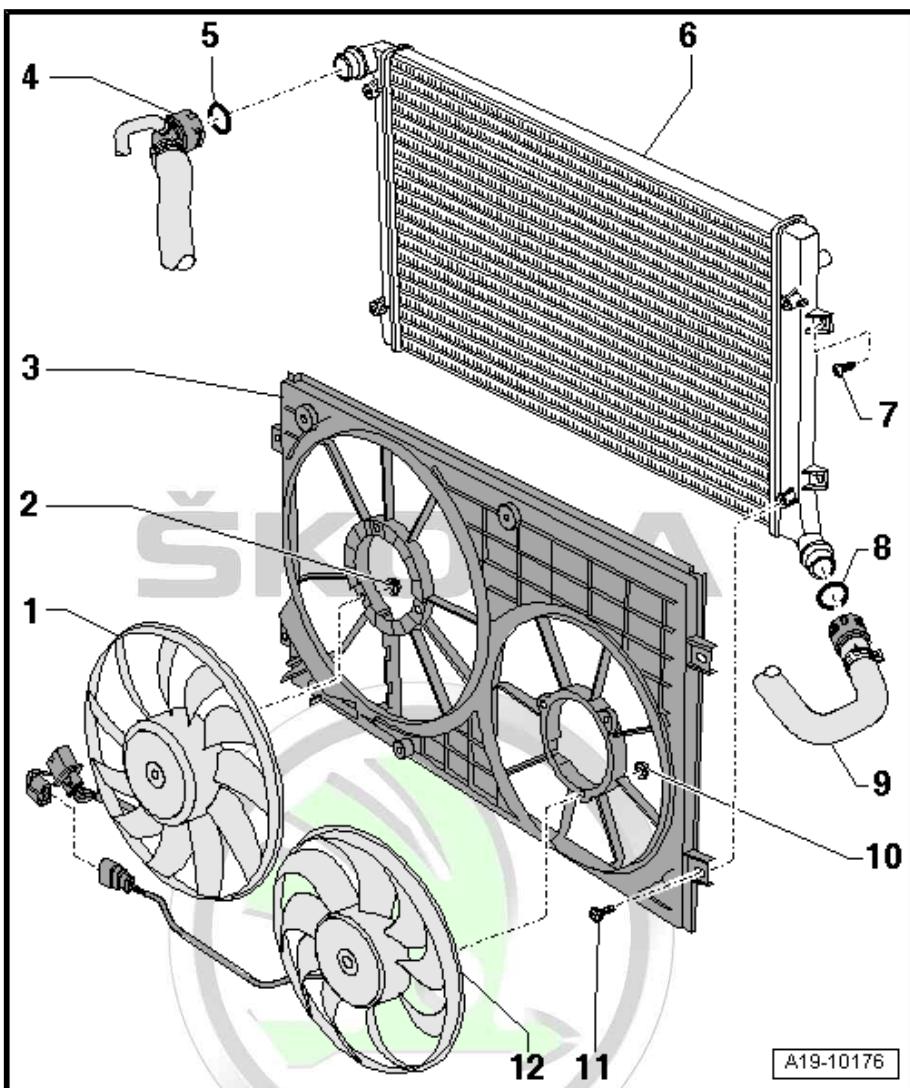
5 - O-ring

- replace if damaged

6 - Radiator

- removing and installing
⇒ "2.3 Removing and installing radiator (Octavia II, Superb II)", page 222

- After renewing, renew entire coolant ⇒ "1.6 Drain and fill coolant (Octavia II, Superb II)", page 205



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**7 - Screw**

- 5 Nm

8 - O-ring

- replace if damaged

9 - Bottom coolant hose

- to connection fitting of coolant regulator at block
- Connection diagram for coolant hoses:

Octavia II [⇒ “1.2 Connection diagram for coolant hoses \(Octavia II\)”, page 189](#)

Superb II [⇒ “1.1 Connection diagram for coolant hoses \(Superb II\)”, page 185](#)

10 - Nut

- 10 Nm

11 - Screw

- 5 Nm

12 - Radiator fan 2 - V35-

- removing and installing
[⇒ “2.5 Removing and installing fan shroud for radiator fan V7 and V177 \(Octavia II, Superb II\)”, page 225](#)



2.2 Parts of cooling system on body side (Fabia II, Roomster)

**WARNING**

Hot steam or hot coolant may escape when the compensation bottle is opened. Cover the cap with a cloth and open carefully.

**Note**

- ◆ When the engine is warm the cooling system is under pressure. If necessary reduce pressure before repairs.
- ◆ Secure all hose connections with corresponding hose clips.
- ◆ Use pliers for spring strap clips to fit the spring strap clips.
- ◆ Always replace seals and gasket rings.



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1 - Radiator

- removing and installing
⇒ ["2.4 Removing and installing radiator \(Fabia II, Roomster\)", page 223](#)
- after replacing fill entire system with fresh coolant

2 - O-ring

- Replace after disassembly

3 - Top coolant hose

- attached to radiator by retaining clips
- connection diagram for coolant hoses
⇒ ["1.3 Connection diagram for coolant hoses \(Fabia II, Roomster\)", page 193](#)

4 - Screw cap

- Check pressure
⇒ ["1.11 Checking the coolant system for leak-tightness", page 214](#)

5 - Connector

6 - Double screw

- 2 Nm

7 - Fan shroud

8 - Nut

- 5 Nm

9 - Expansion tank

- Check the cooling system for tightness
⇒ ["1.11 Checking the coolant system for leak-tightness", page 214](#)
- connection diagram for coolant hoses
⇒ ["1.3 Connection diagram for coolant hoses \(Fabia II, Roomster\)", page 193](#)

10 - Fan holder

11 - Retaining clip

- for fan cable

12 - Radiator fan

13 - Support

- for plug of fan

14 - Bottom coolant hose

- with coolant drain screw
- connection diagram for coolant hoses
⇒ ["1.3 Connection diagram for coolant hoses \(Fabia II, Roomster\)", page 193](#)

15 - Radiator fan thermal switch - F18-

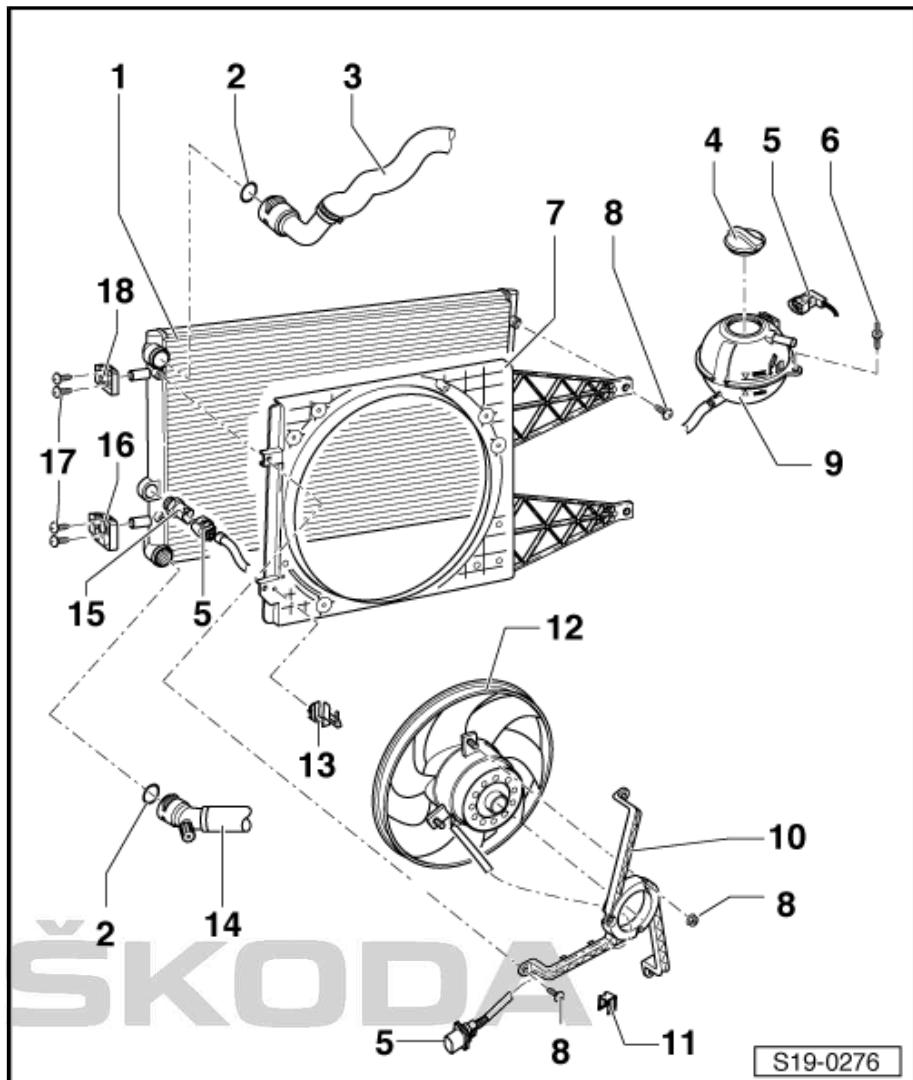
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- for fan

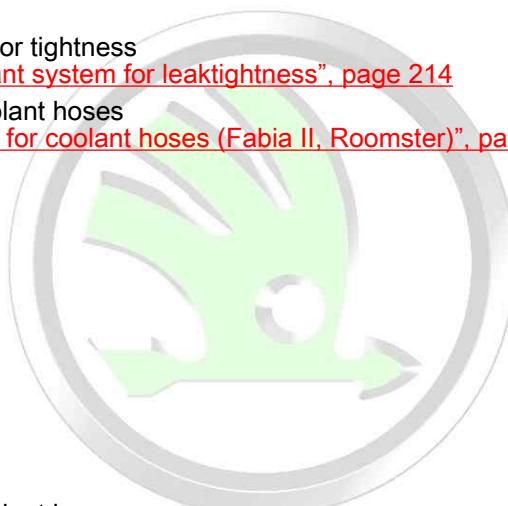
- switching temperatures:

1. Stage

- ◆ on: 91 ... 97 °C



S19-0276





- ◆ off: 84 ... 91 °C

2. Stage

- ◆ on: 99 ... 105 °C

- ◆ off: 91 ... 98 °C

35 Nm

16 - Bottom radiator bearing

black

17 - Screw

5 Nm

18 - Top radiator bearing

white

2.3 Removing and installing radiator (Octavia II, Superb II)

Special tools and workshop equipment required

- ◆ Catch pan , e.g. -VAS 6208-
- ◆ Pliers for spring strap clamps

Removing

- Switch off ignition and pull out ignition key.



Note

Collect drained coolant in a clean container for proper disposal or reuse.

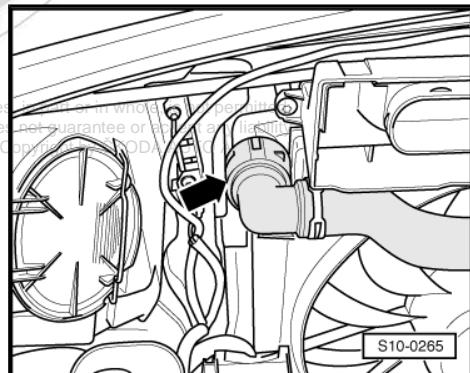


WARNING

Hot steam or hot coolant may escape when the compensation bottle is opened. Cover the cap with a cloth and open carefully.

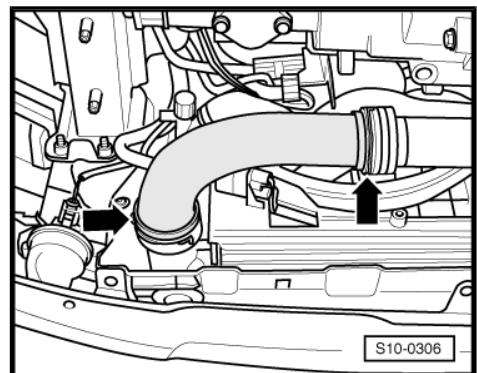
- Drain coolant
[⇒ “1.6 Drain and fill coolant \(Octavia II, Superb II\)”, page 205 .](#)
- Remove coolant hose at top of radiator -arrow-.
- Remove intake air guide to air filter.

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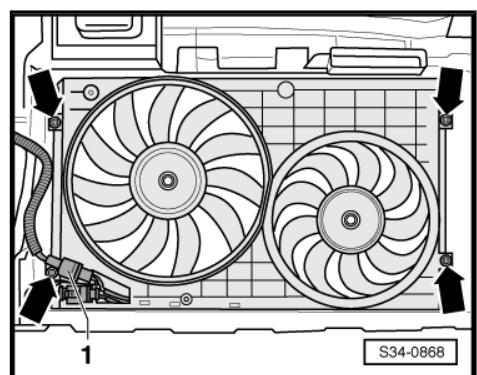




- Remove left charge air hose, to do so pull the retaining clips -arrows-.



- Unplug connector -1-.
- Unscrew fixing bolts for fan shroud -arrows- and remove fan shroud downwards.



- Unscrew the screws -arrows- from the reverse side of the radiator.
- Raise the radiator and remove downwards.

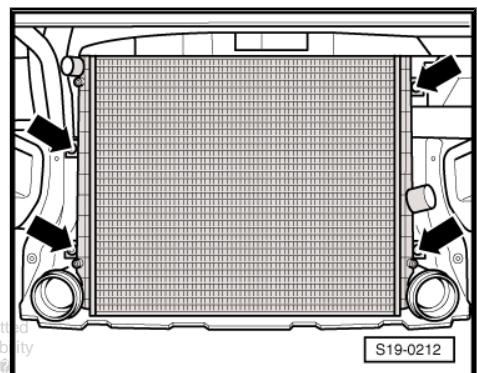
Install

Install in the reverse order of removal. When doing this, note the following:



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- Top up coolant
 ⇒ [“1.6 Drain and fill coolant \(Octavia II, Superb II\)”, page 205](#).

2.4 Removing and installing radiator (Fabia II, Roomster)

Special tools and workshop equipment required

- ◆ Catch pan , e.g. -VAS 6208-
- ◆ Pliers for spring strap clamps

Removing

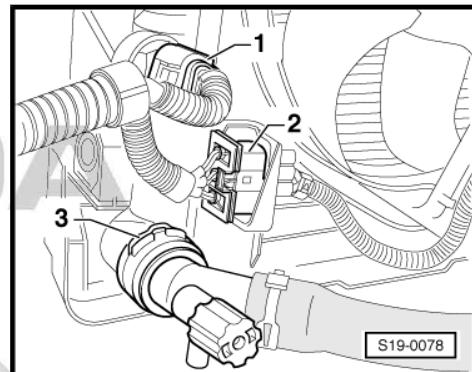
- Remove front bumper ⇒ Body Work; Rep. gr. 63 .
- Remove front headlights ⇒ Electrical System; Rep. gr. 94 .



Note

Collect drained coolant in a clean container for proper disposal or reuse.

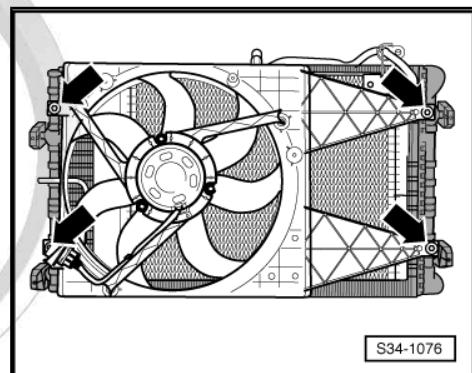
- Drain coolant
[⇒ "1.7 Draining and filling coolant \(Fabia II, Roomster\)", page 208](#).
- Disconnect plug -1- from thermo-switch for radiator fan - F18- and separate plug -2- at the fan shroud.
- Separate the coolant hose from the radiator at the top and bottom -3- of the connection fittings.



- Remove screws -arrows- and remove fan shroud downwards.

Note

On vehicles with air conditioning system unscrew additionally another screw (in the top fan shroud) which holds the pipe holder of the AC system line.



For vehicles with air conditioning



WARNING

Do not open the refrigerant circuit of the air conditioning system.

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Note

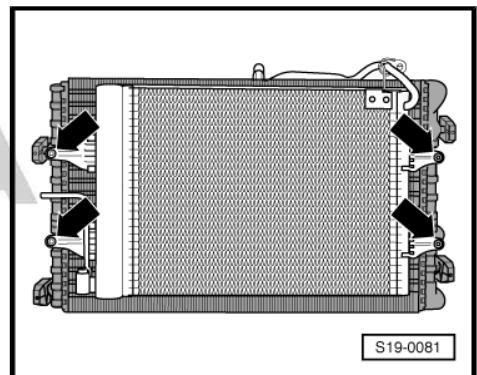
- ◆ Do not suspend the condenser to the wires.
- ◆ Do not fold the condenser wires.



- Release the bolts securing the condenser -arrows-.
- Remove screw for bracket of condenser wire at the bottom from radiator.
- Suspend or support condenser in such a way that it is not damaged when removing the radiator.

Continued for all vehicles

- Remove screws for radiator bearing -17-
 ⇒ [“2.2 Parts of cooling system on body side \(Fabia II, Roomster\)”, page 220](#).
- Push radiator towards engine and take out downwards.



Install

Install in the reverse order of removal. When doing this, note the following:



Note

Replace gasket rings and O-rings.

- Top up coolant
 ⇒ [“1.7 Draining and filling coolant \(Fabia II, Roomster\)”, page 208](#).

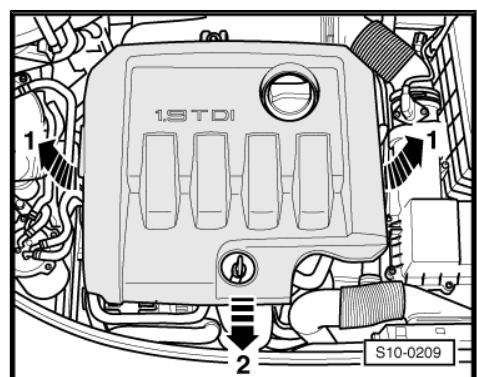
2.5 Removing and installing fan shroud for

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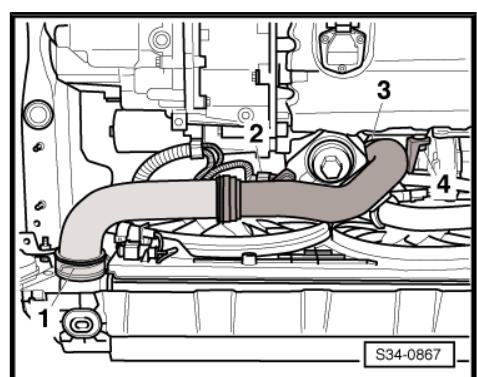
radiator fan -V7- and -V177-(Octavia II, Superb II)

Removing

- Lift the engine cover at the sides -arrows 1- and pull out towards the front -arrow 2-.
- Remove the air filter with air guide hose from the lock carrier
 ⇒ [“1.4 Summary of components - air filter \(Octavia II, Superb II\)”, page 364](#).
- Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .



- Disconnect plug -2- from charge pressure sender - G31- / intake air temperature sender - G42- .
- Release screw -4-.
- Remove charge air pipe with connecting hose; to do so raise the retaining clips -1- and -3-.



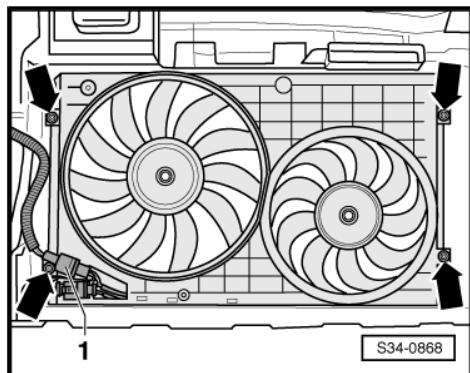
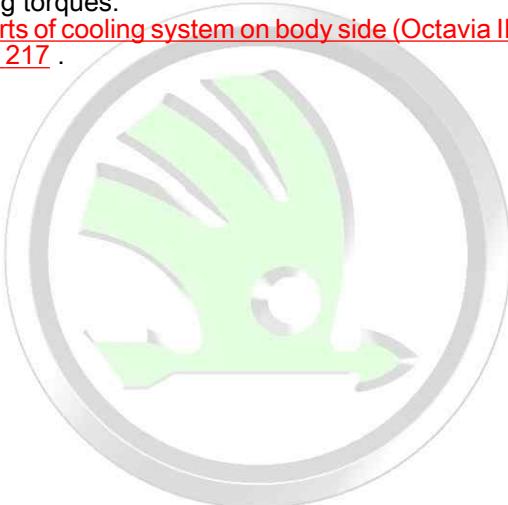


- Unplug connector -1-.
- Screw out screws -arrows- and take out fan shroud downwards.

Install

Installation is performed in the reverse order, pay attention to the following points:

- ◆ Tightening torques:
[⇒ "2.1 Parts of cooling system on body side \(Octavia II, Superb II\)", page 217 .](#)



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20 – Fuel supply system

1 Removing and installing parts of the fuel supply system

- ⇒ “1.1 Summary of components - fuel tank with attached parts (Superb II)”, page 228
- ⇒ “1.2 Summary of components - fuel tank with attached parts (Octavia II, Superb II)”, page 230
- ⇒ “1.3 Summary of components - fuel tank with attached parts, vehicles with four-wheel drive (Octavia II)”, page 232
- ⇒ “1.4 Summary of components - fuel tank with attached parts (Fabia II)”, page 235
- ⇒ “1.5 Summary of components - fuel tank with attached parts (Roomster)”, page 237
- ⇒ “1.6 Summary of components - fuel filter (Superb II)”, page 240
- ⇒ “1.7 Summary of components - fuel filter (Octavia II)”, page 241
- ⇒ “1.8 Summary of components - fuel filter (Fabia II, Roomster)”, page 244
- ⇒ “1.9 Extract fuel from the fuel tank”, page 245
- ⇒ “1.10 Removing and installing fuel cooler (Superb II)”, page 247
- ⇒ “1.9 Extract fuel from the fuel tank”, page 245
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- ⇒ “1.10 Removing and installing fuel cooler (Superb II)”, page 247
- ⇒ “1.11 Removing and installing fuel cooler (Octavia II)”, page 247
- ⇒ “1.12 Removing and installing fuel cooler (Fabia II, Roomster)”, page 248
- ⇒ “1.13 Removing and installing fuel tank (Superb II)”, page 248
- ⇒ “1.14 Removing and installing the fuel tank (Octavia II)”, page 251
- ⇒ “1.15 Removing and installing fuel tank for vehicles with four-wheel drive (Octavia II)”, page 252
- ⇒ “1.16 Removing and installing fuel tank (Fabia II)”, page 254
- ⇒ “1.17 Removing and installing the fuel tank (Roomster)”, page 255
- ⇒ “1.18 Separating quick couplings”, page 257





1.1 Summary of components - fuel tank with attached parts (Superb II)

Note

- ◆ Fuel lines are secured with quick-release couplings.
- ◆ Fuel hoses must only be secured with spring-type clips ⇒ electronic catalogue of original parts . The use of clamp-type or screw-type clips is not allowed.

1 - Return-flow line

- from fuel cooler
- clipped in place on fuel tank
- check for firm seating
- blue (blue marking)

2 - Feed line

- to fuel filter
- clipped in place on fuel tank

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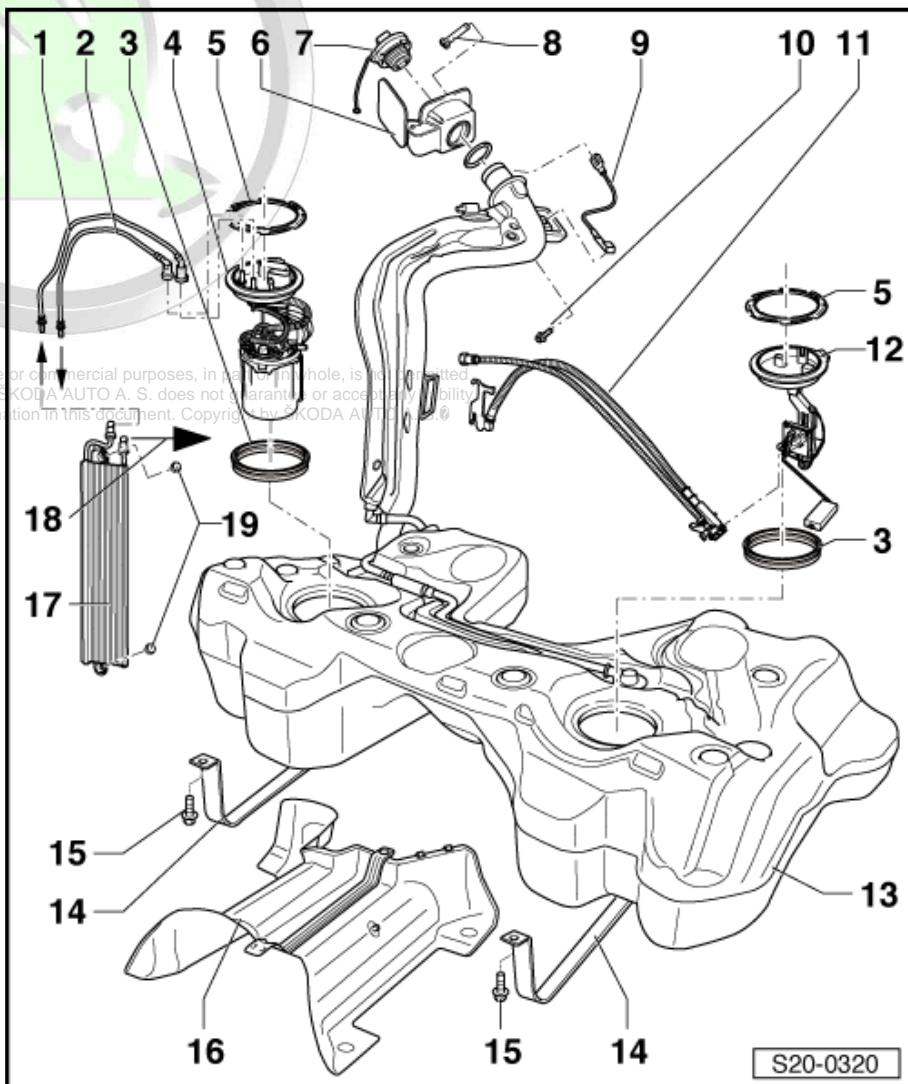
black

3 - Sealing ring

- Replace after disassembly
- to be inserted dry into the opening of the fuel tank
- only moisten from the inside the seal of the flange with fuel for installation purposes

4 - Fuel delivery unit

- with sender for fuel gauge display - G-
- removing and installing
⇒ [“2.3 Removing and installing fuel delivery unit \(Superb II\)”, page 265](#)
- note the installed position of the fuel tank
⇒ [Fig. ““Fitting position of the flange of the fuel](#)



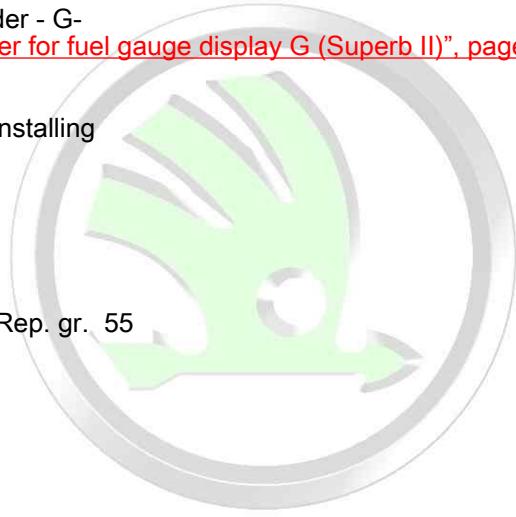
delivery unit (with fuel)

gauge sender -G-) and the flange with fuel gauge sender 2 -G169- ”“ , page 230

- inspecting fuel pump ⇒ “2.1 Testing the fuel pump (Octavia II, Superb II)”, page 261
- Clean strainer if dirty
- Removing and installing fuel gauge sender - G-
⇒ “2.7 Removing and installing the sender for fuel gauge display G (Superb II)”, page 276 .

5 - Lock ring

- use wrench -T30101- for removing and installing
- check for firm seating
- 110 Nm



6 - Fuel tank lid unit

- with rubber bowl
- Removing and installing ⇒ Body Work; Rep. gr. 55

7 - Screw cap

8 - Mounting part

9 - Earth connection

- check for firm seating

10 - Screw

- 10 Nm

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11 - Suction spray pump

- connected to fuel gauge sender 2 - G169-
- removing and installing
⇒ “2.11 Removing and installing suction spray pump (Octavia II, Superb II)”, page 282

12 - Fuel gauge sender 2 - G169-

- note the installed position of the fuel tank
⇒ Fig. ““Fitting position of the flange of the fuel delivery unit (with fuel gauge sender -G-) and the flange with fuel gauge sender 2 -G169- ”“ , page 230
- removing and installing
⇒ “2.10 Removing and installing fuel gauge sender 2 G169 (Octavia II, Superb II)”, page 279

13 - Fuel tank

- when removing support with the engine/gearbox jack, e.g. -V.A.G 1383 A-
- removing and installing ⇒ “1.13 Removing and installing fuel tank (Superb II)”, page 248

14 - Tensioning strap

- Check fitting position

15 - Screw

- 25 Nm

16 - Heat shield

17 - Fuel cooler

- removing and installing ⇒ “1.10 Removing and installing fuel cooler (Superb II)”, page 247

18 - to fuel filter

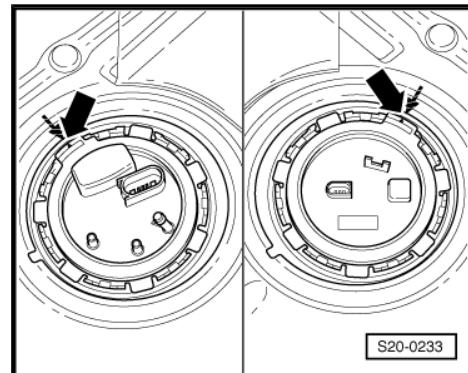
19 - Nut

- 20 Nm



Fitting position of the flange of the fuel delivery unit (with fuel gauge sender -G-) and the flange with fuel gauge sender 2 - G169-

The markings on the flanges must be aligned with the markings on the fuel tank -arrows-.



The markings on the fuel tank are hardly visible.

1.2 Summary of components - fuel tank with attached parts (Octavia II, Superb II)



- ◆ Fuel lines are secured with quick-release couplings.
- ◆ Fuel hoses must only be secured with spring-type clips ⇒ electronic catalogue of original parts . The use of clamp-type or screw-type clips is not allowed.

1 - Mounting part

2 - Screw cap

- replace the O-ring if it is damaged

3 - Earth connection

4 - Screw

- 11 Nm

5 - Support

6 - Fuel tank

- when removing support with the engine/gearbox jack, e.g. - V.A.G 1383 A-
- removing and installing ⇒ ["1.14 Removing and installing the fuel tank \(Octavia II\)", page 251](#)

7 - Screw

- 25 Nm

8 - Circlip

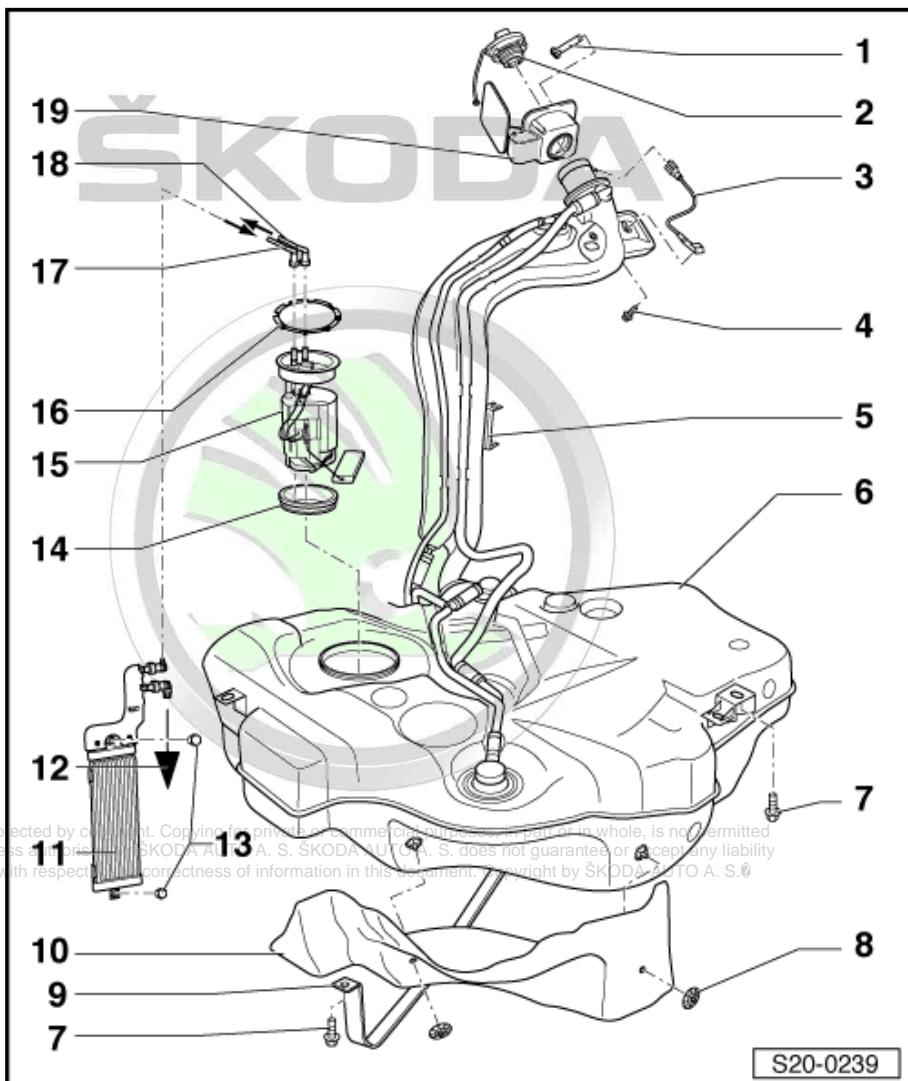
9 - Tensioning strap

- Check fitting position

10 - Heat shield

11 - Fuel cooler

- removing and installing ⇒ ["1.11 Removing and installing fuel cooler](#)





[\(Octavia II\)", page 247](#)

12 - to fuel filter

13 - Nut

- 20 Nm

14 - Sealing ring

- Replace after disassembly
- to be inserted dry into the opening of the fuel tank
- only moisten from the inside the flange of the fuel delivery unit with fuel for installation purposes

15 - Fuel delivery unit

- with sender for fuel gauge display -G-
- removing and installing:

◆ Octavia II ⇒ [“2.4 Removing and installing fuel delivery unit \(Octavia II\)”, page 268](#)

◆ Superb II ⇒ [“2.3 Removing and installing fuel delivery unit \(Superb II\)”, page 265](#)

- note the installed position of the fuel tank
⇒ Fig. [“Fitting position of the flange of the fuel delivery unit with fuel gauge sender”](#), page 232
- inspecting fuel pump ⇒ [“2.1 Testing the fuel pump \(Octavia II, Superb II\)”, page 261](#)
- Clean strainer if dirty
- Removing and installing the sender for fuel gauge:

◆ Octavia II ⇒ [“2.8 Removing and installing the transmitter for fuel gauge display G \(Octavia II\)”, page 277](#)

◆ Superb II ⇒ [“2.7 Removing and installing the sender for fuel gauge display G \(Superb II\)”, page 276](#)

16 - Lock ring

- use wrench -T30101 (3087)- for removing and installing
- check for firm seating
- 110 Nm

17 - Return-flow line

- from fuel cooler
- clipped in place on fuel tank
- check for firm seating
- blue



18 - Feed line

- to fuel filter
- clipped in place on fuel tank
- check for firm seating
- black

19 - Fuel tank lid unit

- with rubber bowl
- Removing and installing ⇒ [Body Work; Rep. gr. 55](#)

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Fitting position of the flange of the fuel delivery unit with fuel gauge sender

The marking -3- on the flange of the fuel delivery unit points against the direction of travel.

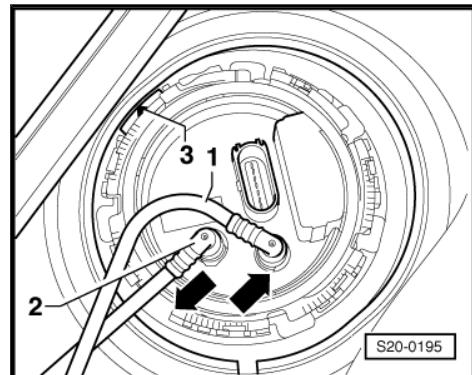


Note

The fuel delivery unit can only be installed in this position.

Blue or blue marked return-flow line -1-.

Black feed line -2-.



Note

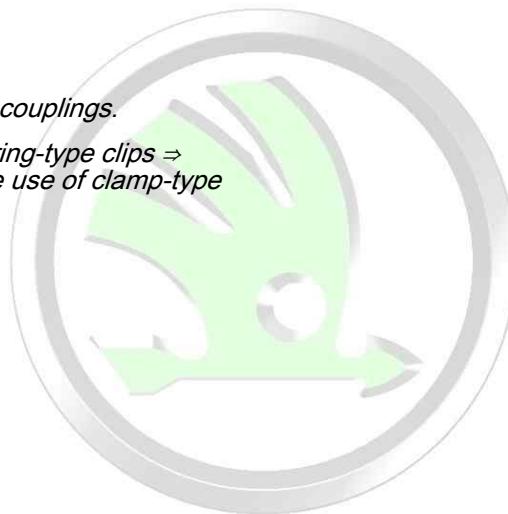
After installing the flange of the fuel delivery unit, check whether the feed line and the return-flow line are clipped in place on the fuel tank.

1.3 Summary of components - fuel tank with attached parts, vehicles with four-wheel drive (Octavia II)



Note

- ◆ Fuel lines are secured with quick-release couplings.
- ◆ Fuel hoses must only be secured with spring-type clips ⇒ electronic catalogue of original parts . The use of clamp-type or screw-type clips is not allowed.



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1 - Return-flow line

- from fuel cooler
- clipped in place on fuel tank
- check for firm seating
- blue (blue marking)

2 - Feed line

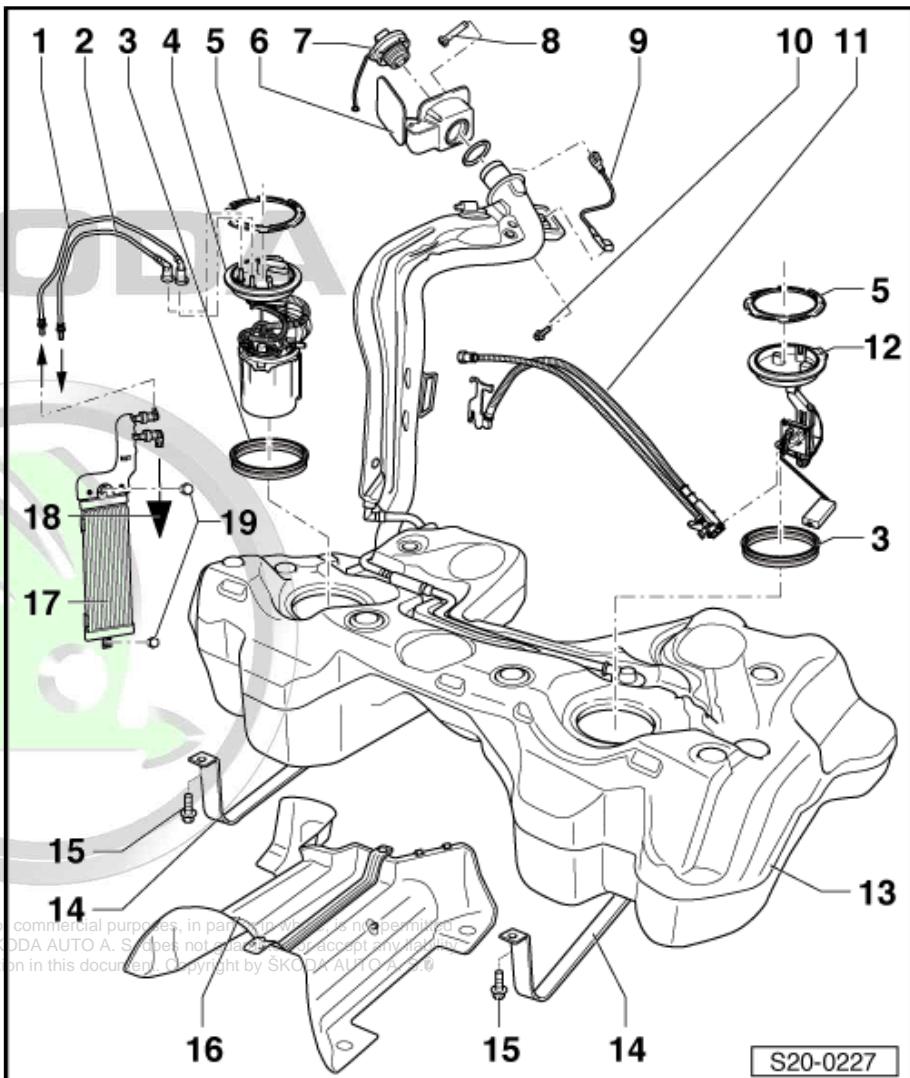
- to fuel filter
- clipped in place on fuel tank
- check for firm seating
- black

3 - Sealing ring

- to be inserted dry into the opening of the fuel tank
- replace if damaged
- only moisten from the inside the seal of the flange with fuel for installation purposes

4 - Fuel delivery unit

- with sender for fuel gauge display -G-
- removing and installing
⇒ "2.5 Removing and installing fuel tank for vehicles with four-wheel drive (Octavia II, Superb II)", page 270
- note the installed position of the fuel tank
⇒ Fig. "Fitting position of the flange of the fuel



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[delivery unit \(with fuel gauge sender -G- \) and the flange with fuel gauge sender 2 -G169- ""](#),
[page 235](#)

- inspecting fuel pump [⇒ "2.1 Testing the fuel pump \(Octavia II, Superb II\)", page 261](#)
- Clean strainer if dirty
- Removing and installing the sender for fuel gauge: -G-
[⇒ "2.8 Removing and installing the transmitter for fuel gauge display G \(Octavia II\)", page 277](#)

5 - Lock ring

- use wrench -T30101 (3087)- for removing and installing
- check for firm seating
- 110 Nm

6 - Fuel tank lid unit

- with rubber bowl
- Removing and installing ⇒ Body Work; Rep. gr. 55

7 - Screw cap

8 - Mounting part

9 - Earth connection

- check for firm seating

10 - Screw

- 10 Nm

11 - Suction spray pump

- connected to fuel gauge sender 2 -G169-
- removing and installing
[⇒ "2.11 Removing and installing suction spray pump \(Octavia II, Superb II\)", page 282](#)

12 - Fuel gauge sender 2 - G169-

- note the installed position of the fuel tank
[⇒ Fig. ""Fitting position of the flange of the fuel delivery unit \(with fuel gauge sender -G- \) and the flange with fuel gauge sender 2 -G169- "" , page 235](#)
- removing and installing
[⇒ "2.10 Removing and installing fuel gauge sender 2 G169 \(Octavia II, Superb II\)", page 279](#)

13 - Fuel tank

- when removing support with the engine/gearbox jack, e.g. -V.A.G 1383 A-
- removing and installing
[⇒ "1.15 Removing and installing fuel tank for vehicles with four-wheel drive \(Octavia II\)", page 252](#)

14 - Tensioning strap

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- Check fitting position

15 - Screw

- 25 Nm

16 - Heat shield

17 - Fuel cooler

- removing and installing [⇒ "1.11 Removing and installing fuel cooler \(Octavia II\)", page 247](#)

18 - to fuel filter

19 - Nut

- 20 Nm



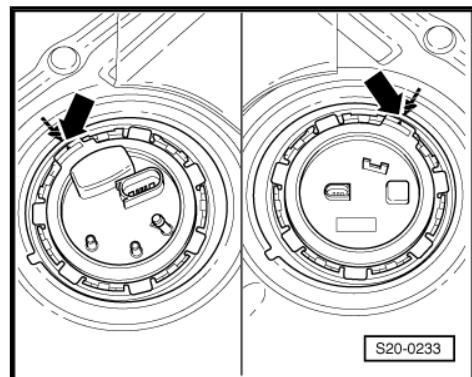


Fitting position of the flange of the fuel delivery unit (with fuel gauge sender -G-) and the flange with fuel gauge sender 2 - G169-

The markings on the flanges -arrows- must be aligned with markings on the fuel tank.



The markings on the fuel tank are hardly visible.

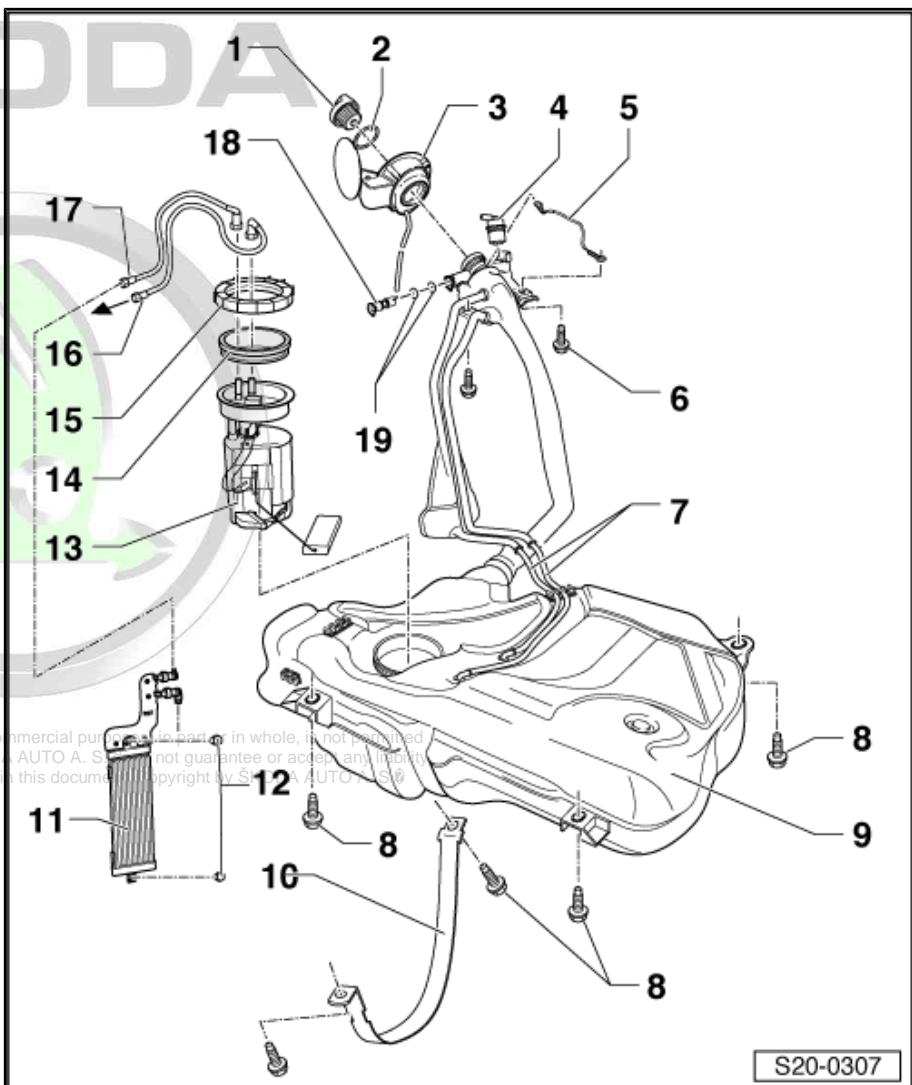


1.4 Summary of components - fuel tank with attached parts (Fabia II)



- ◆ Fuel lines are secured with quick-release couplings.
- ◆ Fuel hoses must only be secured with spring-type clips ⇒ electronic catalogue of original parts . The use of clamp-type or screw-type clips is not allowed.

- 1 - Screw cap
 2 - Gasket
 3 - Fuel tank lid unit
 - with rubber bowl
 4 - Gravity valve
 - to remove, unclip valve at top and lift out of filler neck
 - inspect valve for blockage:
 - ◆ Valve vertical: Valve open
 - ◆ Valve tilted 45°: Valve closed
 5 - Earth connection
 6 - Screw
 - 10 Nm
 7 - Vent lines
 8 - Screw
 - 25 Nm
 9 - Fuel tank
 - when removing support, for example with the engine/gearbox jack - V.A.G 1383 A-
 - removing and installing ⇒ "1.16 Removing and installing fuel tank (Fabia II)", page 254





10 - Tensioning strap

11 - Fuel cooler

- removing and installing [“1.12 Removing and installing fuel cooler \(Fabia II, Roomster\)”, page 248](#)

12 - Nut

- 20 Nm

13 - Fuel delivery unit

- removing and installing
[“2.6 Removing and installing fuel delivery unit \(Fabia II, Roomster\)”, page 274](#)
- with sender for fuel gauge display - G-
- Removing and installing fuel gauge sender
[“2.9 Removing and installing the sender for fuel gauge display G \(Fabia II, Roomster\)”, page 279](#) .
- inspecting fuel pump [“2.2 Testing fuel pump \(Fabia II, Roomster\)”, page 263](#)
- note the installed position of the fuel tank
[“Fig. “Installation position of flange of fuel pump””, page 237](#)
- Clean strainer if dirty

14 - Sealing ring

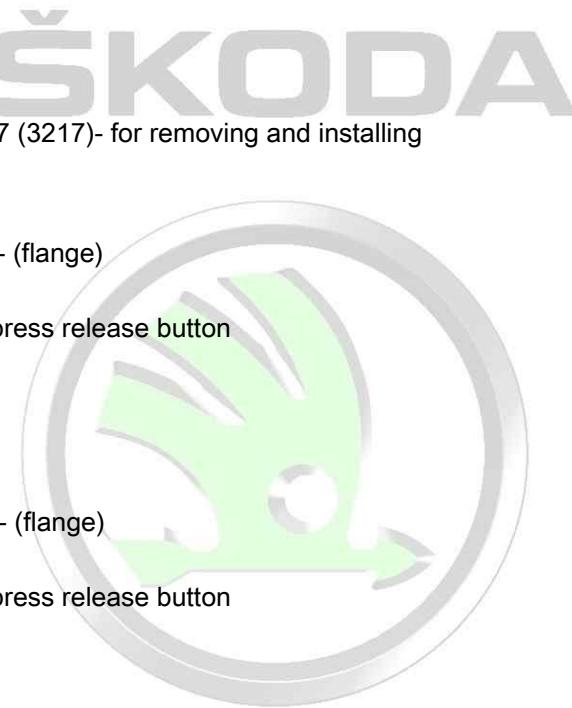
- replace if damaged
- moisten with fuel before installing

15 - Union nut

- use wrench for union nut - MP1-227 (3217)- for removing and installing

16 - Feed line

- to fuel filter
- on connection with identification -V- (flange)
- black
- to remove from connecting flange press release button
- pay attention to correct position
- clipped in place on fuel tank



17 - Return-flow line

- from fuel cooler
- on connection with identification -R- (flange)
- blue
- to remove from connecting flange press release button
- pay attention to correct position
- clipped in place on fuel tank

18 - Vent valve

- to remove, unclip valve at side and take out of filler neck.
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- before installing, unscrew screw cap Pos. -1
[“1.4 Summary of components - fuel tank with attached parts \(Fabia II\)”, page 235](#)
- Check [“Fig. “Inspect vent valve””, page 237](#) .

19 - O-ring

- Replace after disassembly



Installation position of flange of fuel pump

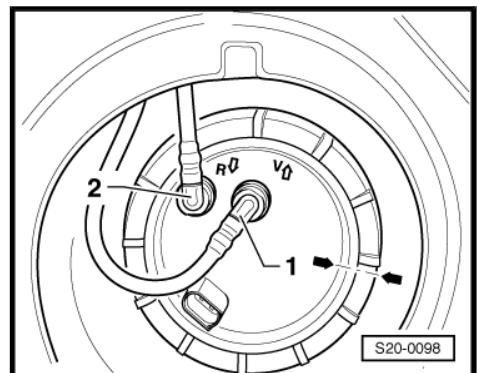
The marking on the flange must be aligned with marking on the fuel tank -arrows-.

(Black) feed line -1- to connection marked -V-.

(Blue) return-flow line -2- to connection marked -R-.



After installing the fuel delivery unit, check whether the feed line and the return-flow line are clipped in place on the fuel tank.



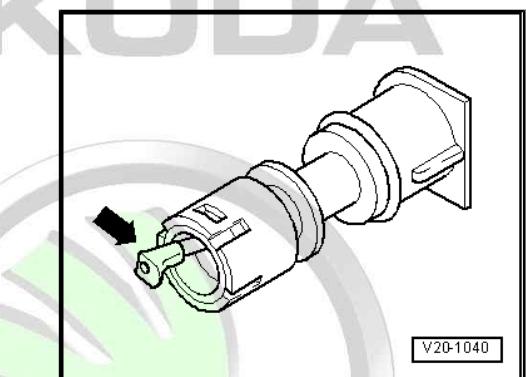
Inspect vent valve

Lever in zero position: Valve closed

Lever pressed in direction of the arrow: Valve open



Before installing the vent valve, unscrew the screw cap.



1.5 Summary of components - fuel tank with attached parts (Roomster)



- ◆ Fuel lines are secured with quick-release couplings.
- ◆ Fuel hoses must only be secured with spring-type clips ⇒ electronic catalogue of original parts . The use of clamp-type or screw-type clips is not allowed.

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1 - Fuel tank

- when removing support, for example with the engine/gearbox jack - V.A.G 1383 A-
- removing and installing
⇒ [“1.17 Removing and installing the fuel tank \(Roomster\)”, page 255](#)

2 - Sealing ring

- Replace after disassembly
- only moisten from the inside the flange of the fuel delivery unit with fuel for installation purposes

3 - Fuel delivery unit

- removing and installing
⇒ [“2.6 Removing and installing fuel delivery unit \(Fabia II, Roomster\)”, page 274](#)
- with sender for fuel gauge display - G-
- removing and installing the sender for fuel gauge
⇒ [“2.9 Removing and installing the sender for fuel gauge display G \(Fabia II, Roomster\)”, page 279](#)
- inspecting fuel pump
⇒ [“2.2 Testing fuel pump \(Fabia II, Roomster\)”, page 263](#)
- note the installed position of the fuel tank
⇒ [“Fig. “Fitting position of the flange of the fuel delivery unit/the sender for the fuel gauge display””, page 240](#)
- Clean strainer if dirty

4 - Union nut

- use wrench -MP1-227 (3217)- **for removing and installing**

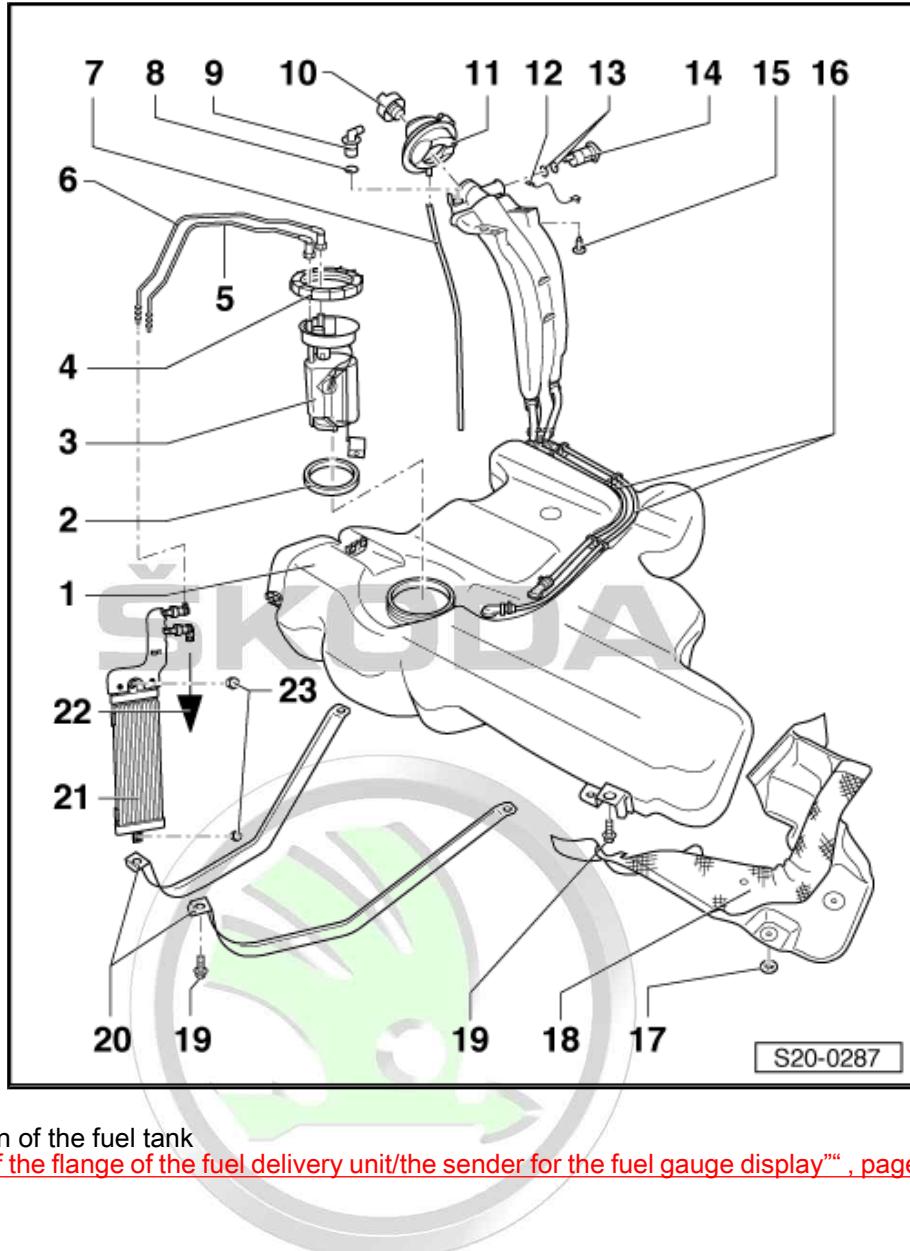
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5 - Feed line

- to fuel filter
- check for firm seating
- Connection to the delivery unit
⇒ [“Fig. “Fitting position of the flange of the fuel delivery unit/the sender for the fuel gauge display””, page 240](#)

6 - Return-flow line

- from fuel cooler
- check for firm seating
- Connection to the delivery unit
⇒ [“Fig. “Fitting position of the flange of the fuel delivery unit/the sender for the fuel gauge display””, page 240](#)



**7 - Overflow hose****8 - O-ring**

- Replace after disassembly

9 - Gravity valve

- to remove, unclip valve at top and lift out of filler neck
- inspect valve for blockage:
 - ◆ Valve vertical: Valve open
 - ◆ Valve tilted 45°: Valve closed

10 - Screw cap

- The gasket can be replaced separately if damaged

11 - Fuel tank lid unit

- with rubber bowl

12 - Earth connection**13 - O-ring**

- Replace after disassembly

14 - Vent valve

- to remove, unclip valve at side and take out of filler neck.
- before installing, unscrew cap -10-
- checking [⇒ Fig. “Inspect vent valve”](#), page 240 .

15 - Screw

- 11 Nm

16 - Vent lines

- clipped in place on fuel tank

17 - Circlip**18 - Heat shield****19 - Screw**

- 25 Nm

20 - Tensioning strap

- pay attention to different lengths

21 - Fuel cooler

- removing and installing [⇒ “1.12 Removing and installing fuel cooler \(Fabia II, Roomster\)”, page 248](#)

22 - to fuel filter**23 - Nut**

- 20 Nm

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Fitting position of the flange of the fuel delivery unit/the sender for the fuel gauge display

The marking on the flange must be aligned with marking on the fuel tank -arrows-.

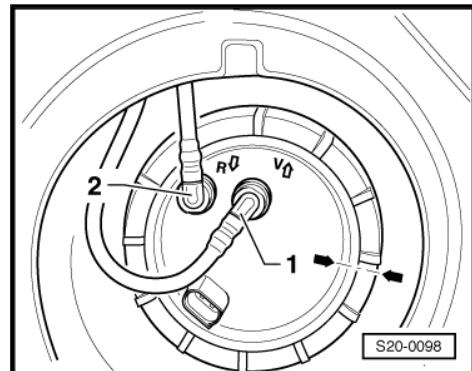
(Black) feed line -1- to connection marked -V-.

(Blue) return-flow line -2- to connection marked -R-.



Note

After installing the fuel delivery unit/the sender for the fuel gauge display, check whether the feed line and the return-flow line are clipped onto the fuel tank.



Inspect vent valve

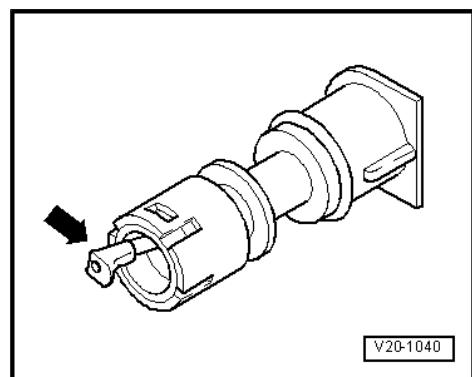
Lever in zero position: Valve closed

Lever pressed in direction of the arrow: Valve open



Note

Before installing the vent valve, unscrew the screw cap.



1.6 Summary of components - fuel filter (Superb II)



Note

Before disconnecting the fuel hoses, mark assignment to the supports.

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**1 - Return-flow hose**

- to fuel cooler
- blue/blue marking

2 - Screw

- 5 Nm

3 - Washer

- integrated on screw -2-

4 - Intake hose

- from fuel tank
- white or white marking

5 - Return-flow hose

- from the tandem pump
- blue marking
- with connection fitting for fuel temperature sender - G81-

6 - Intake hose

- to the tandem pump
- white marking

7 - Fuel filter - top part**8 - Fuel temperature sender - G81-****9 - Sealing ring**

- Replace after disassembly

10 - Fuel filter element

- pay attention to change intervals ⇒ Maintenance ; Booklet Superb II

11 - Fuel filter - bottom part**12 - Screw**

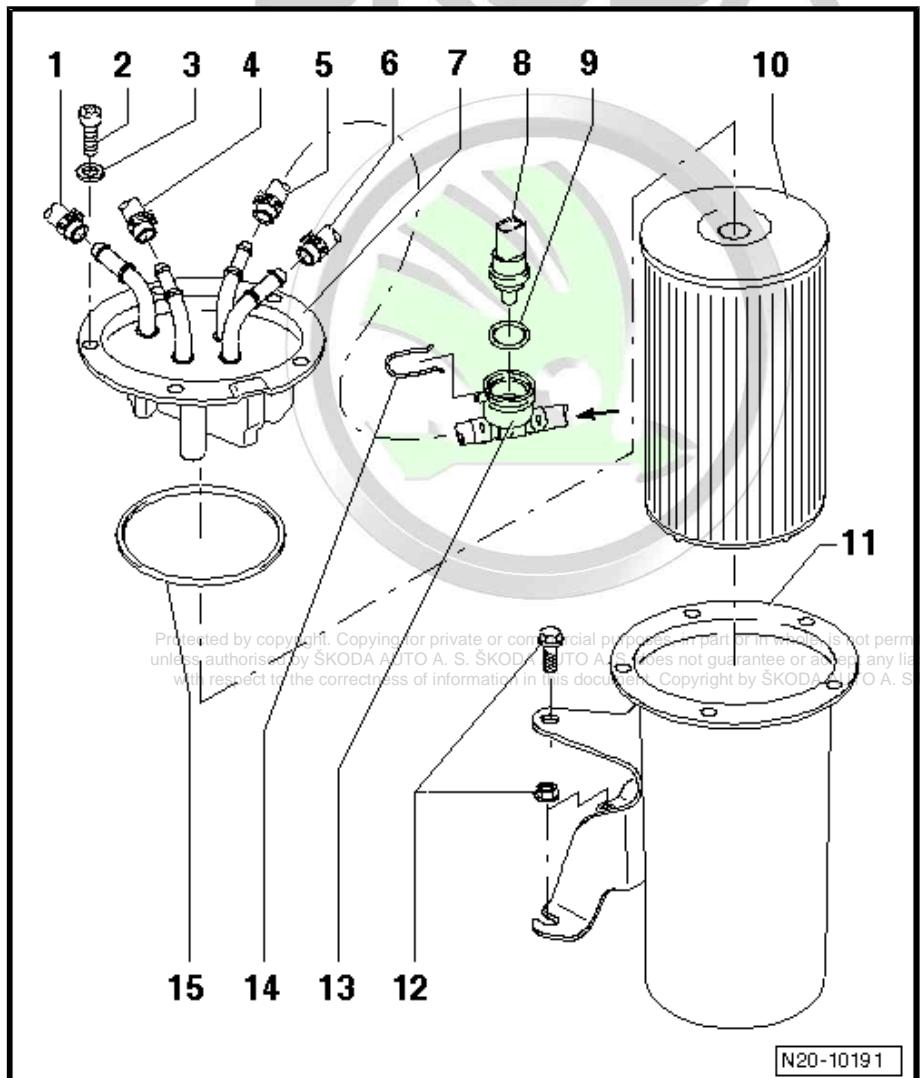
- 10 Nm

13 - Connection fitting of the fuel temperature sender - G81-**14 - Retaining clip**

- replace if damaged

15 - Sealing ring

- Replace after disassembly



1.7 Summary of components - fuel filter (Octavia II)

⇒ “1.7.1 Fuel filter type one and two”, page 242

⇒ “1.7.2 Fuel filter type three and four”, page 243



1.7.1 Fuel filter type one and two



Note

Before disconnecting the fuel hoses, mark assignment to the supports.

1 - Intake hose

- from fuel tank
- white or white marking

2 - Screw

- 8 Nm

3 - Return-flow hose

- to fuel cooler
- blue/blue marking

4 - Drain plug

- unscrew and drain (catch) approx. 0.1 litre fluid using the hand vacuum pump with adapter e. g. -V.A.G 1390- and ventilation reservoir - V.A.G 1390/1-

5 - Sealing ring

- Replace after disassembly

6 - Intake hose

- to the tandem pump
- white marking

7 - Fuel filter - top part

- Raise at the assembly groove using the offset screwdriver - VAS 6543- ⇒ Maintenance ; Booklet Octavia II

8 - Retaining clip

- replace if damaged

9 - Fuel temperature sender - G81-

10 - Return-flow hose

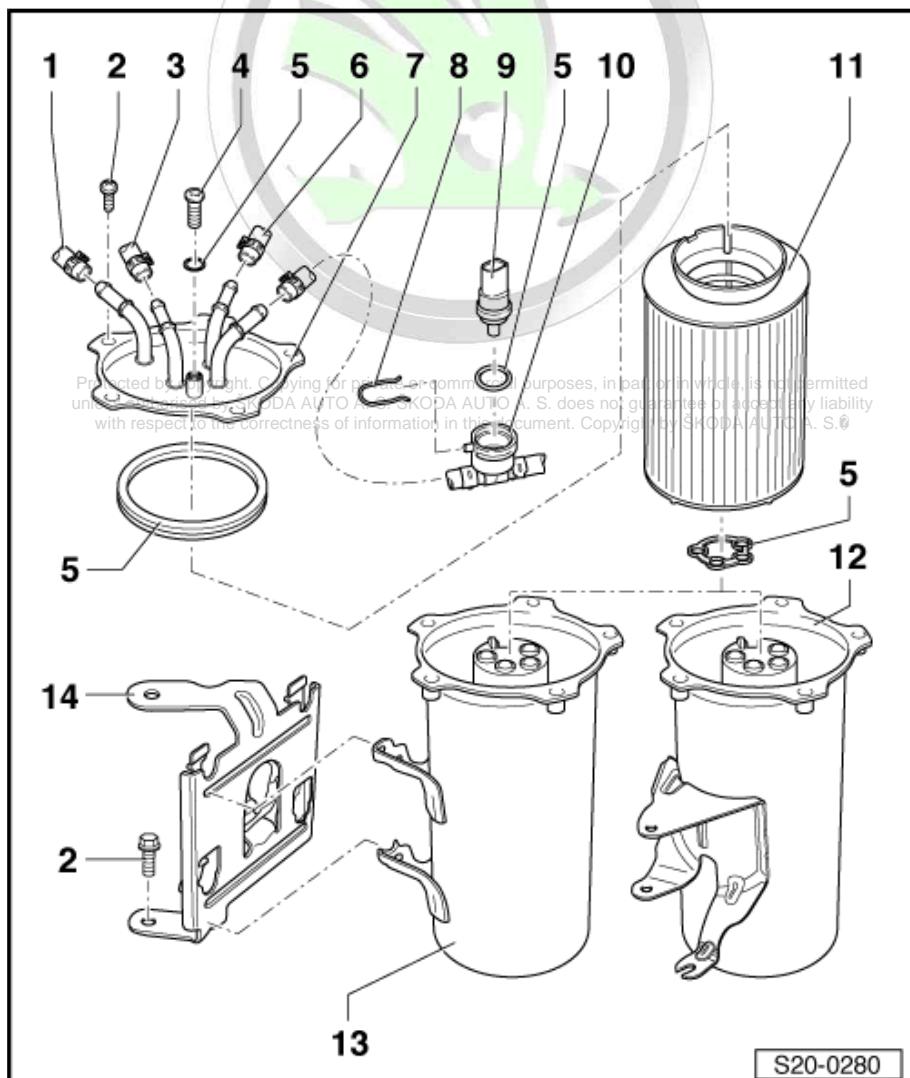
- from the tandem pump
- blue marking
- with connection fitting for fuel temperature sender -G81-

11 - Fuel filter element

- pay attention to change intervals ⇒ Maintenance ; Booklet Octavia II
- Pay attention to the part number

12 - Fuel filter with integrated bracket - bottom part.

- mounted as of 08.2005
- with integrated preheating valve





13 - Fuel filter - bottom part

- mounted up to 08.2005
- with integrated preheating valve

14 - Support

- mounted up to 08.2005

1.7.2 Fuel filter type three and four



Note

Before disconnecting the fuel hoses, mark assignment to the supports.

1 - Intake hose

- from fuel tank
- white marking

2 - Return-flow hose

- to fuel cooler
- blue marking

3 - Intake hose

- to the tandem pump
- white marking

4 - Screw

- for type 3 (left part of the figure): 9 Nm
- for type 4 (right part of the figure): 5 Nm

5 - Retaining clip

- replace if damaged

6 - Fuel temperature sender - G81-

7 - Sealing ring

- Replace after disassembly

8 - Return-flow hose

- from the tandem pump
- blue marking
- with connection fitting for fuel temperature sender -G81-

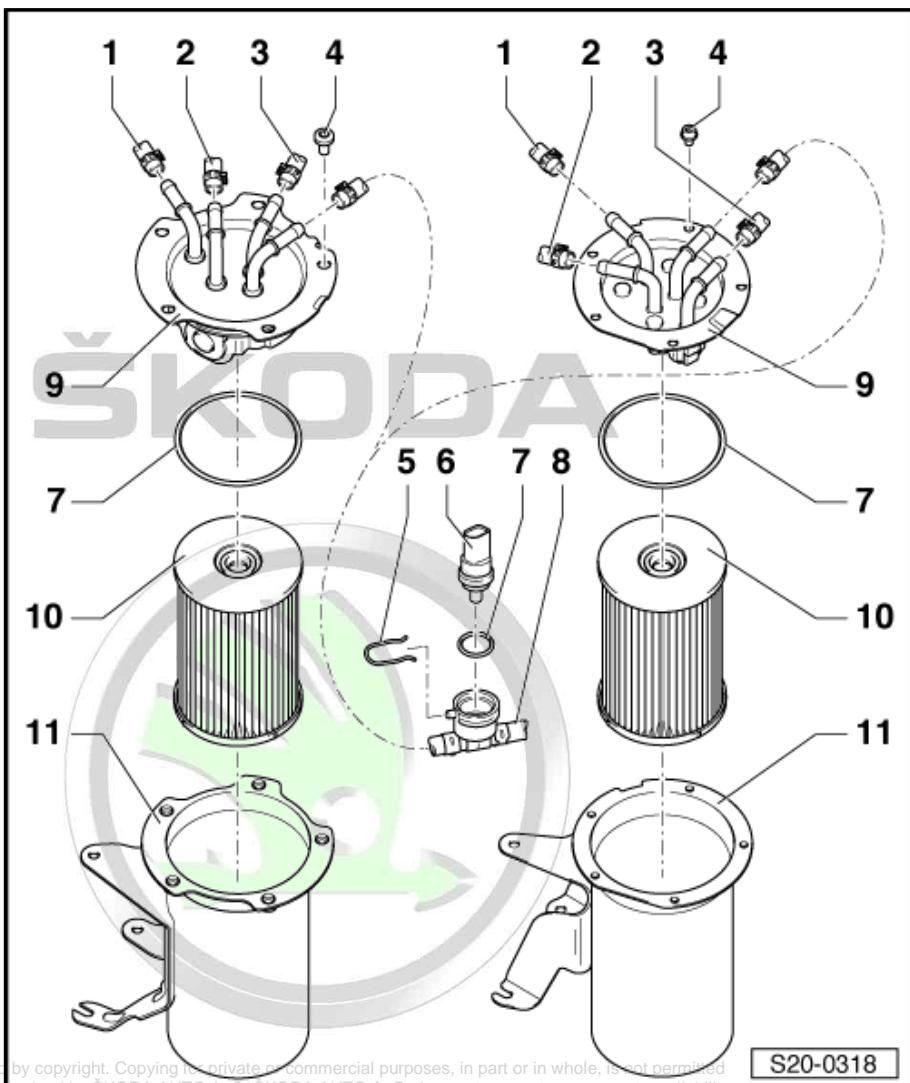
9 - Fuel filter - top part

- Raise at the assembly groove using the offset screwdriver - VAS 6543- ➔ Maintenance ; Booklet Octavia II

10 - Fuel filter element

- pay attention to change intervals ➔ Maintenance ; Booklet Octavia II
- Pay attention to the part number

11 - Fuel filter with integrated bracket - bottom part.



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1.8 Summary of components - fuel filter (Fabia II, Roomster)

The fuel flow direction is indicated with arrows on the hoses and on the fuel filter.

1 - Return-flow hose

- to fuel cooler
- blue marking

2 - Intake hose

- to fuel delivery unit
- white marking

3 - Retaining clip

- replace if damaged

4 - Preheating valve

- Fitting position: arrow points to fuel tank
- if the filter is replaced remove retaining clip and preheating valve with the fuel lines connected
- Temperature less than +15 °C: Passage to filter opened
- Temperature greater than +31 °C: Passage to filter closed

5 - Return-flow hose

- to fuel cooler
- blue marking

6 - Fuel hose

7 - Fuel temperature sender - G81-

8 - Intake hose

- from fuel tank
- white marking

9 - Fuel filter

- fill with diesel fuel before fitting
- do not interchange connections
- replace if damaged
- removing and installing [⇒ Fig. ““Removing and installing fuel filter””, page 245](#)

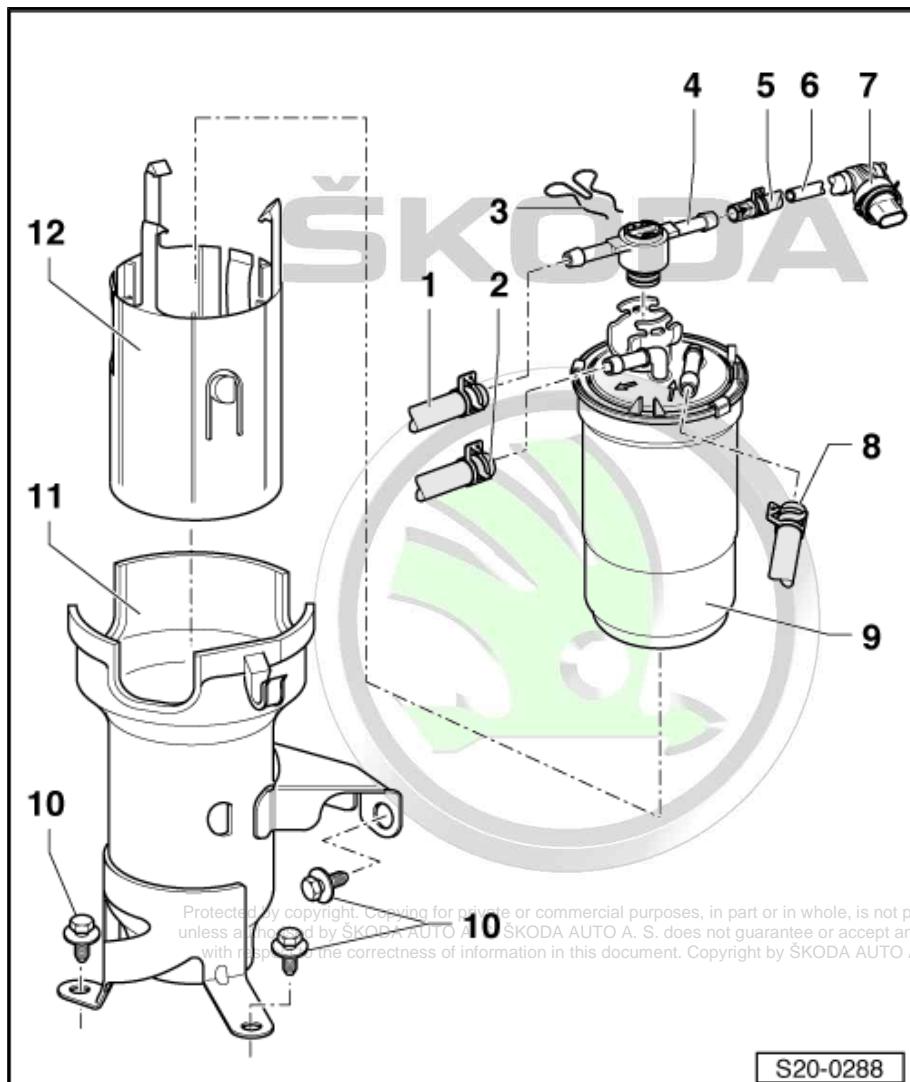
10 - Screw

- 25 Nm

11 - Support

12 - Plastic insert

- with holder Pos. -11-, this is a replacement part



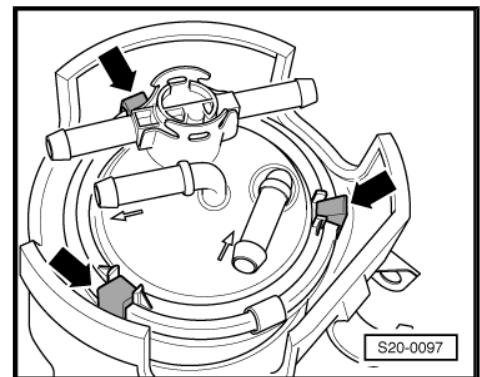


Removing and installing fuel filter

- Remove the preheating valve with the fuel hoses fitted (pull out retaining clip).
- Remove fuel feed line.
- Push the retaining lugs -arrows- of the plastic insert outwards.
- Remove fuel filter from the top.



The fuel filter can only be removed in one position.



1.9 Extract fuel from the fuel tank

Special tools and workshop equipment required

- ◆ Hose adapter , e.g. -V.A.G 1318/16-
- ◆ Adapter , e.g. -V.A.G 1318/17-
- ◆ Measuring tool set , e.g. -V.A.G 1594 C-
- ◆ Battery
- ◆ Catch pan for fuel

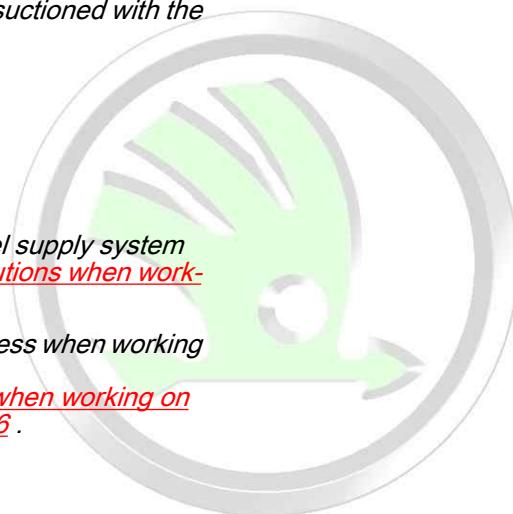


If the fault is at the fuel delivery unit, the fuel is suctioned with the fuel suction equipment e.g. -VAS 5190- .

Work procedure



- ◆ *Safety precautions when working on the fuel supply system*
⇒ "2.1 Regulations concerning safety precautions when working on the fuel system", page 3 .
- ◆ *Observe the regulations concerning cleanliness when working on the fuel supply/injection system*
⇒ "3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system", page 6 .



- Switch off ignition and pull out ignition key.

For vehicles Fabia II

- Position right rear seat vertically ⇒ Body Work; Rep. gr. 72 .

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For vehicles Roomster

- Fold back the middle and rear seat and position vertically ⇒ Body Work; Rep. gr. 72 .

For the vehicles Octavia II and Superb II

- Removing rear seat bench ⇒ Body Work; Rep. gr. 72 .

Continued for all vehicles

- Remove the cover from the fuel delivery unit.



Note

For vehicles with auxiliary heating, the plug connection for the dosing pump -V54- must also be separated.



WARNING

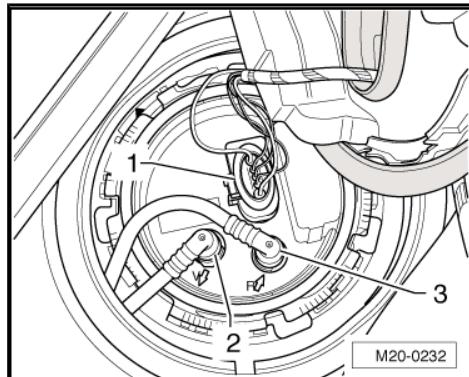
The fuel feed line is pressurized! Wear safety goggles and safety clothing, in order to avoid injuries and skin contact. Place cleaning cloths around the connection point before detaching cable connections. Reduce pressure by carefully removing the wiring.

- Disconnect plug -1- and black feed line -2-.



Note

Always press in the securing ring in order to unlock the lines.



- Connect the adapter -V.A.G 1318/16- and -V.A.G 1318/17- and fit the "drain pipe" thus prepared onto the feed support of the fuel pump.
- Hold the "drain pipe" in a suitable fuel tank.
- Using auxiliary cables -A- from the measuring tool set -V.A.G 1594/C- connect up the battery through contacts of the fuel pump as follows:

Battery positive terminal (+) to contact -1- of the fuel pump

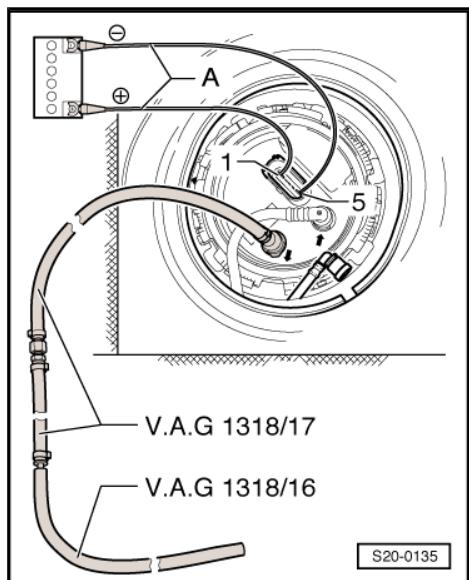
Battery negative terminal (-) to contact -5- of the fuel pump

The fuel pump runs and suctions off fuel.



WARNING

In order to avoid fuel overflow due to the fuel catch pan not being sufficiently large enough, the fuel pump must not run unattended.





1.10 Removing and installing fuel cooler (Superb II)



Note

- ◆ The fuel cooler is located at the return-flow line to the fuel tank. It is attached to the underfloor of the vehicle body.
- ◆ Safety precautions when working on the fuel supply system
[⇒ "2.1 Regulations concerning safety precautions when working on the fuel system", page 3](#).
- ◆ Observe the regulations concerning cleanliness when working on the fuel supply/injection system
[⇒ "3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system", page 6](#).

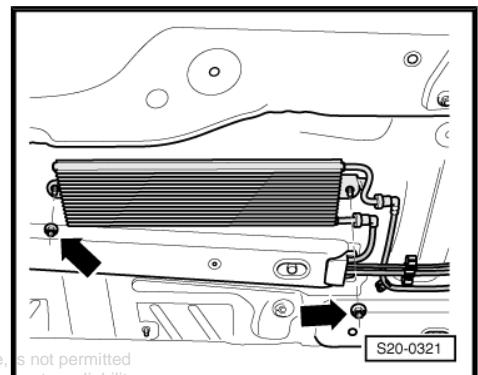
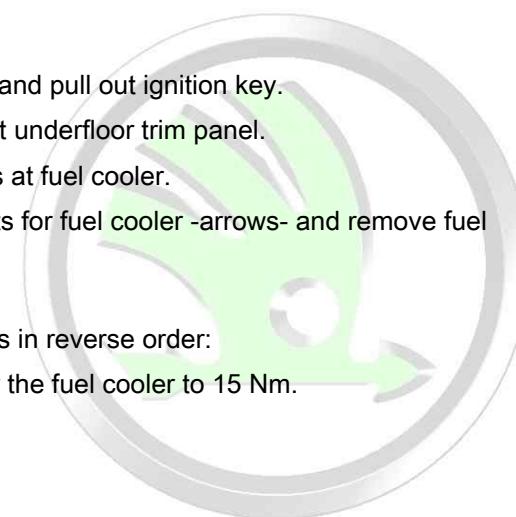
Removing

- Switch off ignition and pull out ignition key.
- Removing the right underfloor trim panel.
- Separate fuel lines at fuel cooler.
- Unscrew fixing nuts for fuel cooler -arrows- and remove fuel cooler.

Install

The installation occurs in reverse order:

Tighten fixing nuts for the fuel cooler to 15 Nm.



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1.11 Removing and installing fuel cooler (Octavia II)



Note

The fuel cooler is located in the return-flow line to the fuel tank. It is attached to the underfloor of the vehicle body.

- Observe rules for cleanliness
[⇒ "3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system", page 6](#).

Removing

- Removing the right underfloor trim panel.
- Separate fuel lines at fuel cooler.

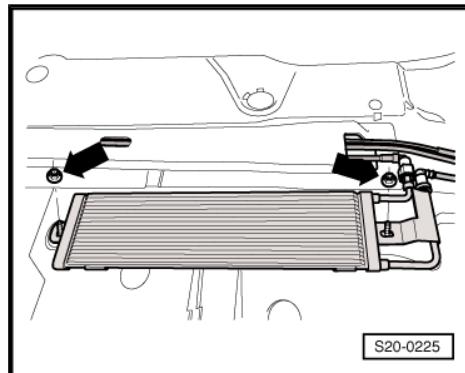


- Unscrew fixing nuts for fuel cooler -arrows- and remove fuel cooler.

Install

The installation occurs in reverse order:

Tighten fixing nuts for the fuel cooler to 18 Nm.



1.12 Removing and installing fuel cooler (Fabia II, Roomster)



Note

The fuel cooler is located at the return-flow line to the fuel tank. It is attached to the underfloor of the vehicle body.

Observe safety measures

⇒ “[2.1 Regulations concerning safety precautions when working on the fuel system](#)”, page 3 .

Observe rules for cleanliness

⇒ “[3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system](#)”, page 6 .

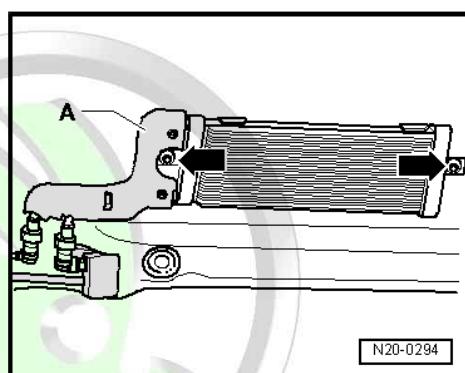
Removing

- Remove the right underfloor trim panel ⇒ Body Work; Rep. gr. 50 .
- Removing cover -A-.
- Separate fuel lines at fuel cooler.
- Unscrew fixing nuts for fuel cooler -arrows- and remove fuel cooler.

Install

The installation occurs in reverse order:

Tighten fixing nuts for the fuel cooler to 20 Nm.



1.13 Removing and installing fuel tank (Superb II)

Special tools and workshop equipment required

- ◆ Engine/gearbox jack , e.g. -V.A.G 1383 A-

Precondition

- The fuel tank must be empty for weight reasons when removing it, if necessary suction the fuel out of the fuel tank
 ⇒ “[1.9 Extract fuel from the fuel tank](#)”, page 245 .

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Removing



Note

- ◆ *Safety precautions when working on the fuel supply system*
⇒ "2.1 Regulations concerning safety precautions when working on the fuel system", page 3.
- ◆ *Observe the regulations concerning cleanliness when working on the fuel supply/injection system*
⇒ "3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system", page 6.

- Switch off all electrical components and withdraw key from ignition lock.
- Removing rear seat bench ⇒ Body Work; Rep. gr. 72 .
- Remove the cover from the fuel delivery unit.

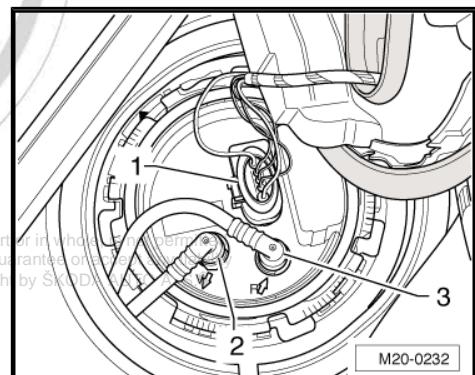
Vehicles with auxiliary heating.

- Separate the 2 pin plug connection of the dosing pump -V54- .
- Remove the rubber grommet from the cover of the fuel delivery unit and pull out the wiring.

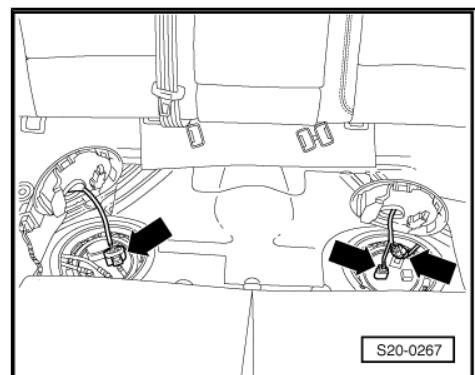
Continued for all vehicles

- Unplug the 5-pin plug -1- from the fuel tank.

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- Remove the cover of the fuel gauge sender -2- -G169- (in the figure on the right) and disconnect the plugs on the right -arrows-.
- Open the fuel tank cap and clean around the fuel filler neck.
- Unscrew the cap from the fuel filler neck.
- Close the opening of the fuel filler neck with a clean foam piece, so that no dirt can penetrate.
- Remove the rear right wheelhouse liner ⇒ Body Work; Rep. gr. 66 .

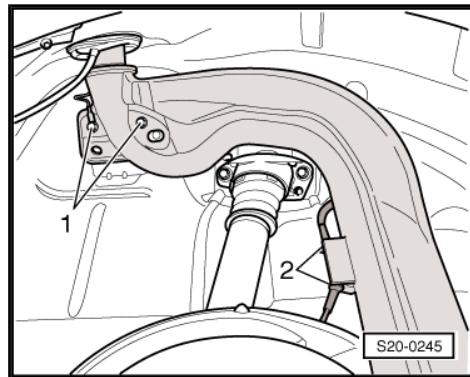




- Unscrew screws -1- for filler neck on the body.
- Unclip the electrical cable from the bracket -2- at the top and bottom of the filler neck.
- Disconnect the feed line and the return-flow line on the front right of the fuel tank.

 **Note**

Press in the securing ring in order to unlock the lines.

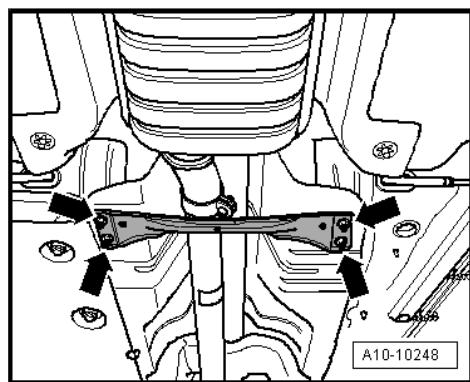


Vehicles with auxiliary heating.

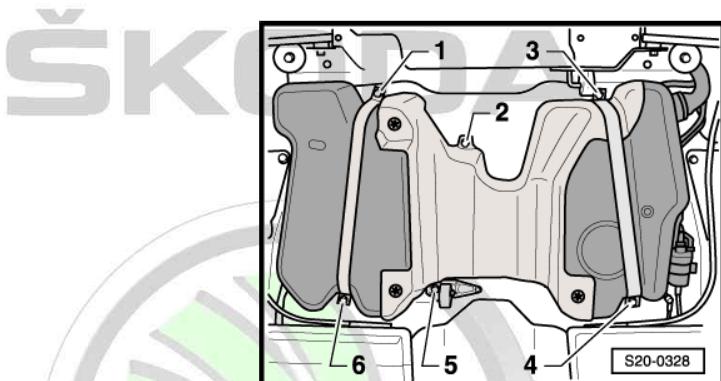
- Separate the fuel line from the dosing pump -V54- .

Continued for all vehicles

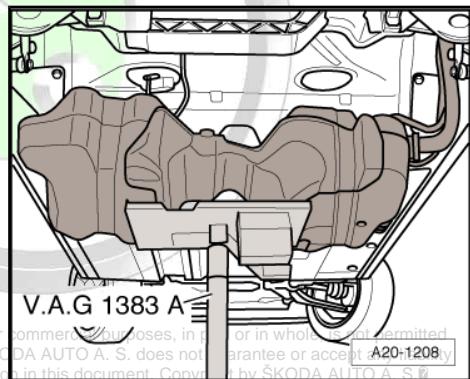
- Remove rear tunnel bridge -arrows-.
- Remove the rear silencer
[⇒ “1.1 Summary of components - exhaust system \(Superb II\)”, page 380](#) .



- First of all screw out the screws -2- and -5-.



- Support the fuel tank using the engine/gearbox jack -V.A.G 1383 A- .
- Unscrew the remaining screws -1, 3, 4 and 6- of the tensioning straps.
- Lower the fuel tank using the engine/gearbox jack -V.A.G 1383 A- .
- Then remove the fuel tank from the engine/gearbox jack - V.A.G 1383 A- and pull through the filler neck between the body and the rear axle with the help of a second mechanic.



Install

- Check both earth connections for corrosion, if necessary remove corrosion.

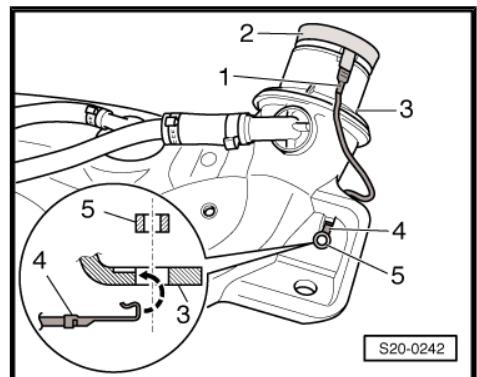
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- Check fitting position of the earth lead -1-.
- The plug -1- on the metal plate ring -2- must be placed on firmly.
- The contact tab -4- must be hung on the fuel tank -3- and secured with the spacer bush -5-.
- Guide the filler neck between body and rear axle with the assistance of a 2nd mechanic. Then position the fuel tank onto the engine/gearbox jack - V.A.G 1383 A - .

Further installation occurs in reverse order. Pay attention to the following:

- ◆ Lay the vent and fuel lines without any kinks.
- ◆ Do not mix-up the feed line and the return-flow line (the return-flow line is blue, the feed line is black).
- ◆ Make sure the line connections fit tightly.
- ◆ Check the earth connection of the fuel tank at the body on the filler neck.
- ◆ After installing the fuel tank, check whether the lines are also clipped in place on the fuel tank.



1.14 Removing and installing the fuel tank (Octavia II)

Special tools and workshop equipment required

- ◆ Engine/gearbox jack , e.g. -V.A.G 1383 A-

Precondition

- The fuel tank must be empty for weight reasons when removing it, if necessary suction the fuel out of the fuel tank
⇒ "1.9 Extract fuel from the fuel tank", page 245 .

Removing



- ◆ Safety precautions when working on the fuel supply system
⇒ "2.1 Regulations concerning safety precautions when working on the fuel system", page 3 .
- ◆ Observe the regulations concerning cleanliness when working on the fuel supply/injection system
⇒ "3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system", page 6 .

- Switch off all electrical components and withdraw key from ignition lock.
- Removing rear seat bench ⇒ Body Work; Rep. gr. 72 .

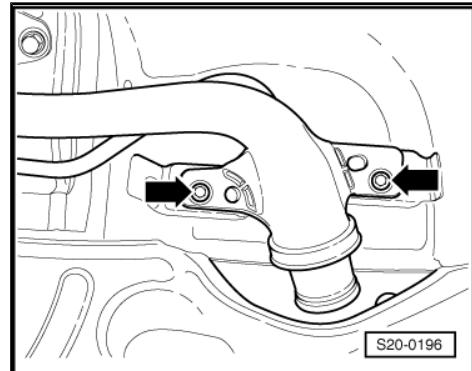


For vehicles with auxiliary heating, the plug connection for the dosing pump -V54- must also be separated.

- Remove the cover from the fuel delivery unit.
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- Disconnect the plug from the flange of the fuel delivery unit.
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- Unscrew right rear wheel ⇒ Chassis; Rep. gr. 44 .



- Remove the rear right wheelhouse liner ⇒ Body Work; Rep. gr. 66 .
- Unscrew fixing bolts on filler neck -arrows-.
- Remove rear tunnel bridge -1-
⇒ "1.2 Summary of components - exhaust system (Octavia II)", page 383 .
- Slacken front clamping sleeve at exhaust sleeve and push clamping sleeve to the rear.
- Push out all suspensions of rear muffler from the retaining straps.
- Slightly lower the exhaust pipe and tie with wire to body.
- Disconnect the feed line and the return-flow line on the front right of the fuel tank.



Note

- ◆ For vehicles with auxiliary heating, the fuel line of the dosing pump -V54- must also be separated.
- ◆ Press in the securing rings in order to unlock the connections of the fuel lines.

- Unscrew tensioning strap and fixing screws. Support the fuel tank with engine/gearbox jack -V.A.G 1383 A- when removing.
- Lower the fuel tank.

Install

Installation is carried out in the reverse order. Pay attention to the following:

- ◆ Lay the vent and fuel hoses without any kinks.
- ◆ Do not mix-up the feed line and the return-flow line (the return-flow line is blue, the feed line is black).
- ◆ Make sure the fuel line connections fit tightly.
- ◆ Check feed line, return-flow line and ventilation line at fuel tank for firm seating.
- ◆ Check earth connection of fuel tank/body at filler neck.

1.15 Removing and installing fuel tank for vehicles with four-wheel drive (Octavia II)

Special tools and workshop equipment required

- ◆ Engine/gearbox jack , e.g. -V.A.G 1383 A-

Removing

Note

Observe the safety instructions before starting fitting work
⇒ "2.1 Regulations concerning safety precautions when working on the fuel system", page 3 .

- Disconnect the battery-earth strap with the ignition off ⇒ Electrical System; Rep. gr. 27 .
- Drain the fuel tank. Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by ŠKODA AUTO A. S. ŠKODA AUTO A. S. does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by ŠKODA AUTO A. S. ©

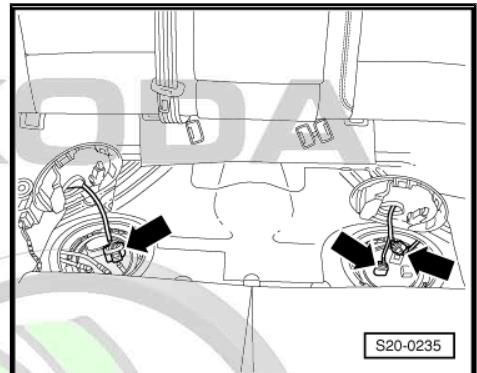


- Removing rear seat bench ⇒ Body Work; Rep. gr. 72 .
- Remove the cover from the fuel delivery unit and the fuel gauge sender 2 -G169- .

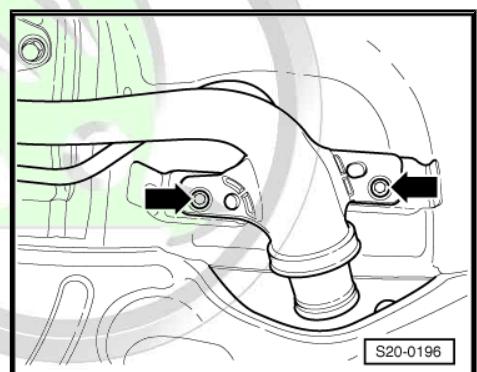
Note

For vehicles with auxiliary heating, the plug connection for the dosing pump -V54- must also be separated.

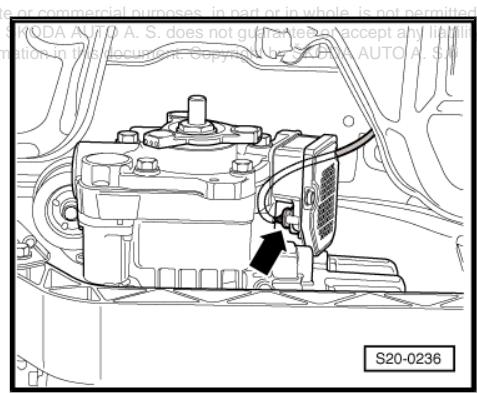
- Disconnect the plug from the flange of the fuel delivery unit and from the flange of the fuel gauge sender 2 -G169- -arrows-.
- Unscrew right rear wheel ⇒ Chassis; Rep. gr. 44 .
- Remove the rear right wheelhouse liner ⇒ Body Work; Rep. gr. 66 .



- Unscrew fixing bolts on filler neck -arrows-.
- Remove the rear silencer
⇒ “1.2 Summary of components - exhaust system (Octavia II)”, page 383 .
- Remove propshaft ⇒ Gearbox; Rep. gr. 39 .



- Disconnect plug -arrow- from four-wheel drive control unit -J492- .
- Disconnect the feed line and the return-flow line on the front right of the fuel tank.



Note

- ◆ *For vehicles with auxiliary heating, the fuel line of the dosing pump -V54- must also be separated.*
- ◆ *Press in the securing rings in order to unlock the connections of the fuel lines.*

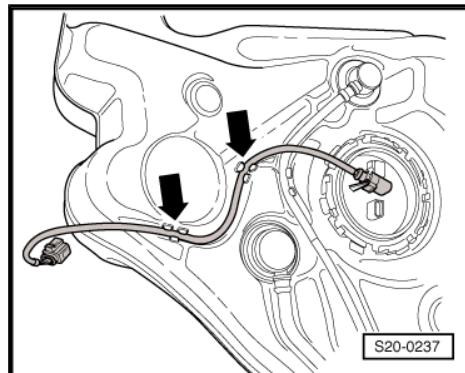
- Unscrew the straps and fixing screws. Support the fuel tank with engine/gearbox jack -V.A.G 1383 A- when removing.
- Lower the fuel tank.

Install



- Clip on cable from four-wheel drive control unit -J492- at the fuel tank -arrows-.
- Support fuel tank with engine/gearbox jack, e.g. - V.A.G 1383 A- .
- Raise fuel tank in its installation position and install.

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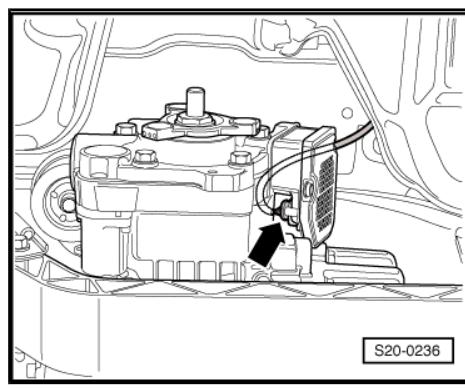


S20-0237

- Connect plug -arrow- at four-wheel drive control unit -J492- .

Further installation occurs in reverse order to removal. Pay attention to the following:

- ◆ Lay the vent and fuel hoses without any kinks.
- ◆ Do not mix-up the feed line and the return-flow line (the return-flow line is blue, the feed line is black).
- ◆ Make sure the fuel line connections fit tightly.
- ◆ Check feed line, return-flow line and ventilation line at fuel tank for firm seating.
- ◆ Check earth connection of fuel tank/body at filler neck.



S20-0236

1.16 Removing and installing fuel tank (Fabia II)

Special tools and workshop equipment required

- ◆ Engine/gearbox jack , e.g. -V.A.G1383 A-
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Conditions

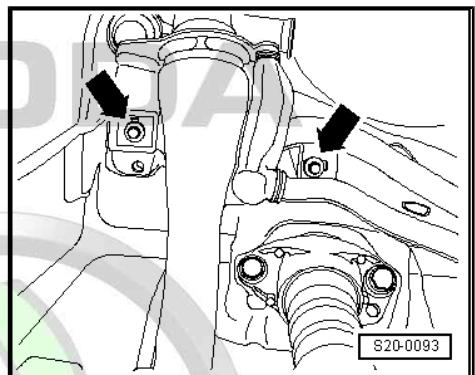
- Ignition is switched off and ignition key is withdrawn.
- The fuel tank must be empty for weight reasons when removing it, if necessary suction the fuel out of the fuel tank
⇒ "1.9 Extract fuel from the fuel tank", page 245 .

Removing

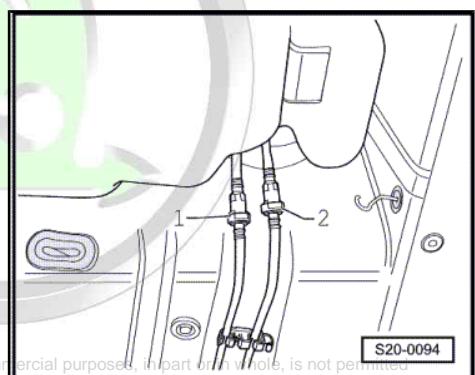
- Remove fuel tank cap -1- from fuel filler neck
⇒ "1.4 Summary of components - fuel tank with attached parts (Fabia II)", page 235
- Fold back right rear seat vertically ⇒ Body Work; Rep. gr. 72 .
- Remove the cover of the fuel delivery unit under the mat.
- Unplug the 4-pin plug from the fuel delivery unit.
- Removing rear axle ⇒ Chassis; Rep. gr. 42 .
- Remove the rear silencer
⇒ "1.3 Summary of components - exhaust system (Fabia II)", page 389 .
- Remove left heat shield next to the fuel tank.
- Remove the rear right wheelhouse liner ⇒ Body Work; Rep. gr. 66 .



- Unscrew bolts on filler neck -arrows-.
- Detach fuel return-flow line (blue) from the fuel delivery unit -16-
 ⇒ “1.4 Summary of components - fuel tank with attached parts (Fabia II)”, page 235 .



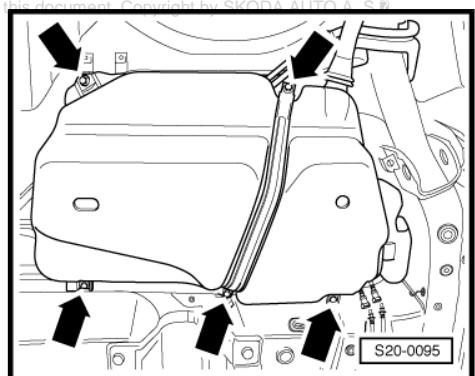
- Disconnect feed line (black) -1- and return-flow line (blue) -2- from the fuel tank (press release buttons).
- Support fuel tank using the engine/gearbox jack - V.A.G 1383 A- .



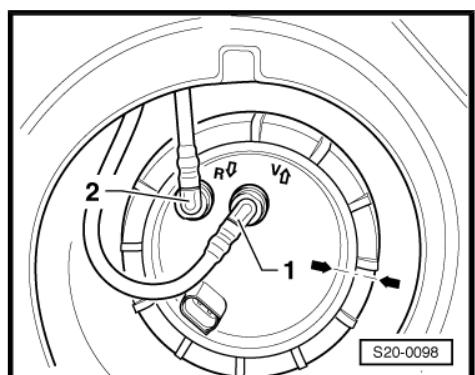
- Release the securing bolts -arrows- of the fuel tank.
- Draw the filler neck from the rubber bowl and lower the fuel tank downwards.

Install

Installation is carried out in reverse order. Pay attention to the following:



- Connect fuel lines to the flange of the delivery pump:
 - ◆ (Black) feed line -1- to connection marked -V-.
 - ◆ (Blue) return-flow line -2- to connection marked -R-.
 - ◆ Make sure the fuel line connections fit tightly.
 - ◆ Check feed line, return-flow line and ventilation line at fuel tank for firm seating.
 - ◆ Check earth connection of fuel tank/body at filler neck.



1.17 Removing and installing the fuel tank (Roomster)

Special tools and workshop equipment required

- ◆ Engine/gearbox jack , e.g. -V.A.G 1383 A-

Conditions

- Ignition is switched off and ignition key is withdrawn.



- The fuel tank must be empty for weight reasons when removing it, if necessary suction the fuel out of the fuel tank
[⇒ "1.9 Extract fuel from the fuel tank", page 245](#).

Removing



Note

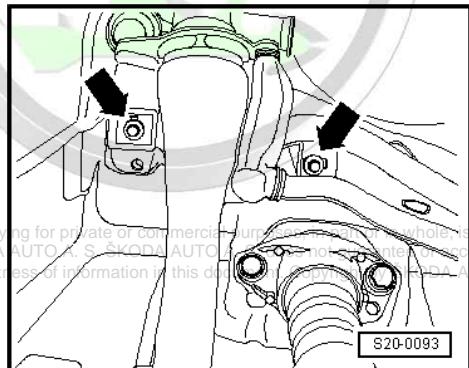
- Observe the safety instructions before starting fitting work*
[⇒ "2.1 Regulations concerning safety precautions when working on the fuel system", page 3](#).
- Observe rules for cleanliness*
[⇒ "3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system", page 6](#).

- Remove fuel tank cap -10- from fuel filler neck
[⇒ "1.5 Summary of components - fuel tank with attached parts \(Roomster\)", page 237](#)
- Fold back the middle and rear seat and position vertically ⇒ Body Work; Rep. gr. 72 .
- Remove the cover of the fuel delivery unit under the mat.
- Disconnect the plug from the fuel delivery unit.
- Removing rear axle ⇒ Chassis; Rep. gr. 42 .
- Remove the rear right wheelhouse liner ⇒ Body Work; Rep. gr. 66 .
- Unscrew bolts on filler neck -arrows-.

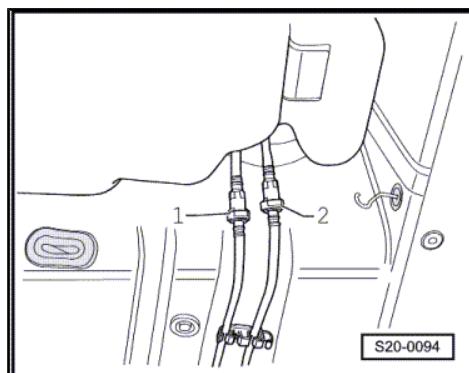
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- Detach feed line (black) -1- and return-flow line (blue) -2- from the fuel tank (press release buttons).
- Remove tensioning strap over the heat protection plate
- Remove heat shield.
- Push the suspension of rear muffler out of the retaining strap.
- Support fuel tank using the engine/gearbox jack - V.A.G 1383 A- .

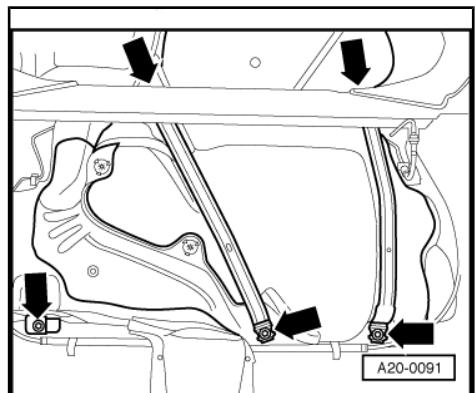




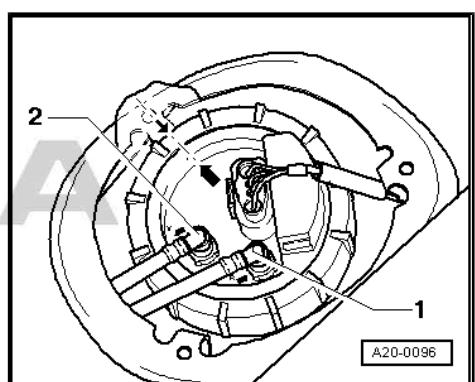
- Unscrew tensioning strap and fixing screw -arrows-.
- Pull the filler neck out of the rubber bowl and swivel the fuel tank downwards.

Install

Installation is carried out in the reverse order. Pay attention to the following:



- Connect the fuel lines to the flange of the fuel delivery unit:
 - ◆ (Black) feed line -2- to connection marked -V-.
 - ◆ (Blue) return-flow line -1- to connection marked -R-.
 - ◆ Make sure the fuel line connections fit tightly.
 - ◆ Check feed line, return-flow line and ventilation line at fuel tank for firm seating.
 - ◆ Check earth connection of fuel tank/body at filler neck.



1.18 Separating quick couplings

Special tools and workshop equipment required

- ◆ Lever - T10468-

Assign quick couplings



Note

Quick couplings of fuel, vacuum and ventilation lines are colour marked. Either the colour point at the quick coupling or the release button has the corresponding colour.

Quick coupling	Colour coding at the quick coupling
Fuel feed line	Black
Fuel return-flow line	Blue
Breather	White, beige
Vacuum	Green



WARNING

The fuel feed line is pressurized! Wear safety goggles and safety clothing, in order to avoid injuries and skin contact with fuel. Place cleaning cloths around the connection point before detaching hose connections. Reduce pressure by carefully removing the hose.

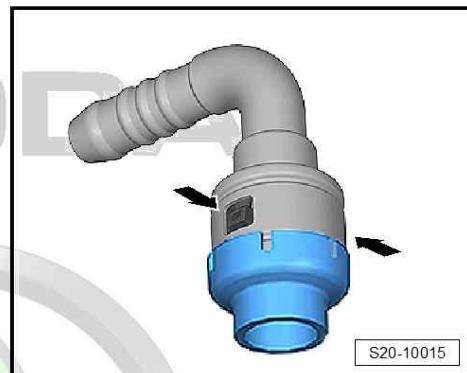


Variant 1



When the push-fit coupling is fitted with a plastic circlip, leave it inserted when removing and installing the quick release.

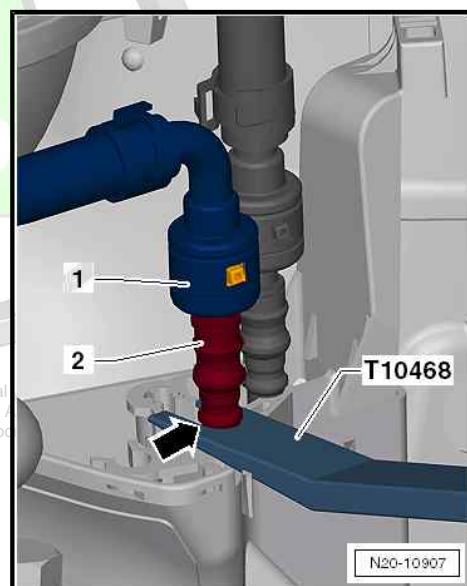
Quick coupling with release buttons -arrows- on right and left.



The coupling point -1- in the engine compartment must be held.

- Insert the lever - T10468- between the heat shield and the stop -arrow- of the fuel line -2- and hold it.

Continued for all socket boxes

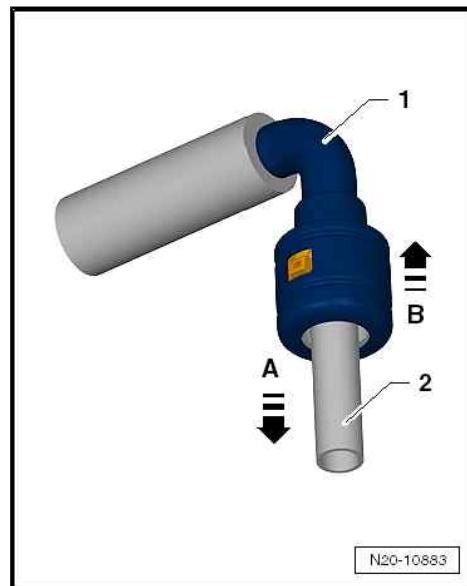


- Press the quick coupling -1- in direction of arrow -A-.
- Press the release buttons and remove the quick coupling -1- from the fuel line -2- in direction of the arrow -B-.

Pay attention to the colour assignment when installing
[⇒ page 257](#).

The quick coupling must »audibly« click in place when securing it.

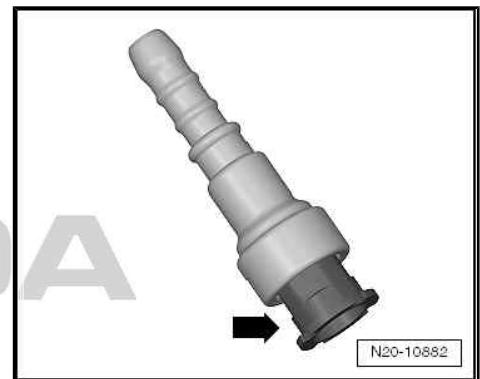
- Check the quick couplings for firm seating by pulling in the opposite direction!



Variant 2

Push-on coupling with pull-release mechanism -arrow-

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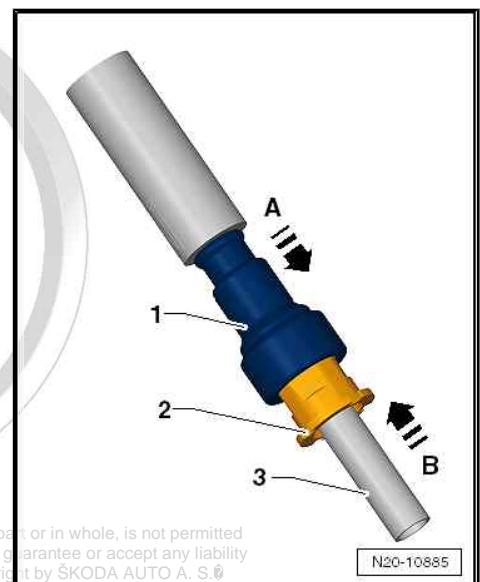
N20-10882

- Press the quick coupling -1- in direction of arrow -A-.
- Pull pull-release mechanism -2- in direction of arrow -B-.
- Remove the quick coupling -1- from the fuel line -3- in direction of the arrow -B-.

Pay attention to the colour assignment when installing
[⇒ page 257](#).

The quick coupling must »audibly« click in place when securing it.

- Check the quick couplings for firm seating by pulling in the opposite direction!



N20-10885

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Variant 3

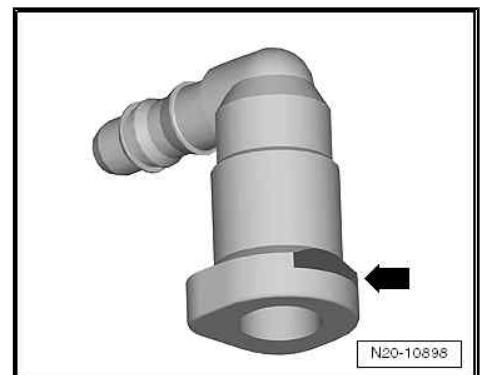
Quick coupling with front release button -arrow-.

- Press the release button -arrow- and detach the quick couplings.

Pay attention to the colour assignment when installing
[⇒ page 257](#).

The quick coupling must »audibly« click in place when securing it.

- Check the quick couplings for firm seating by pulling in the opposite direction!



N20-10898

Variant 4

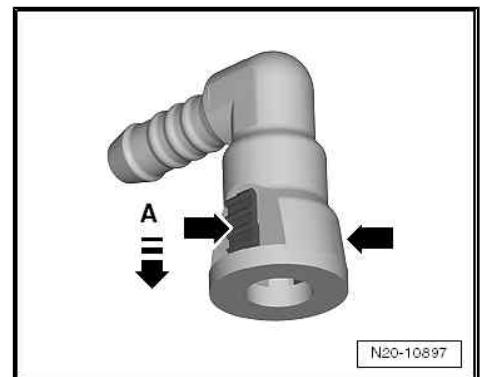
Quick coupling with release buttons -arrows- on right and left.

- Press the quick coupling in direction of arrow -A-.
- Press release buttons -arrows- and detach quick coupling.

Pay attention to the colour assignment when installing
[⇒ page 257](#).

The quick coupling must »audibly« click in place when securing it.

- Check the quick couplings for firm seating by pulling in the opposite direction!



N20-10897



Variant 5

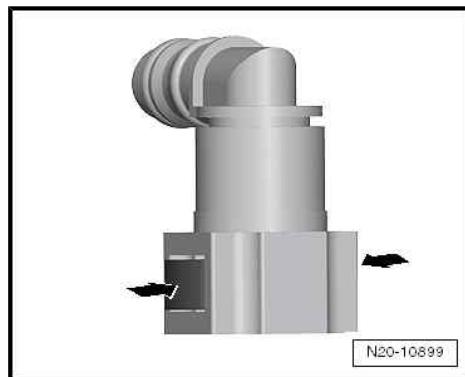
Quick coupling with release buttons -arrows- on right and left.

- Press release buttons -arrows- and detach quick coupling.

Pay attention to the colour assignment when installing
[⇒ page 257](#).

The quick coupling must »audibly« click in place when securing it.

- Check the quick couplings for firm seating by pulling in the opposite direction!



Variant 6

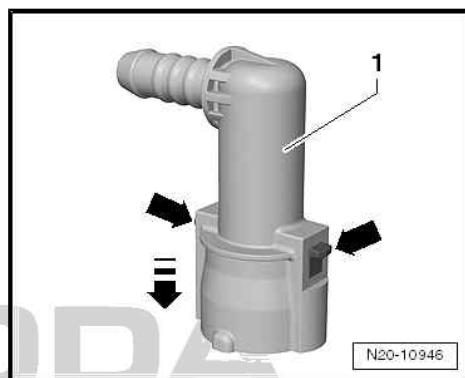
Push-on coupling with release buttons -arrows- on front and rear.

- Press push-on coupling -1- in direction of arrow and hold pressed.
- Press release buttons -arrows- and detach quick coupling.

Pay attention to the colour assignment when installing
[⇒ page 257](#).

The quick coupling must »audibly« click in place when securing it.

- Check the quick couplings for firm seating by pulling in the opposite direction!



Variant 7

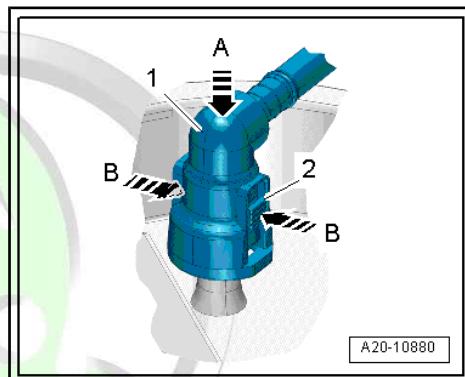
Quick coupling -1- with release buttons -arrows- right and left.

- Press quick coupling -1- in direction of arrow -A- and hold pressed.
- Press the release buttons -2- in direction of arrow -B- and remove the quick coupling -1-.

Pay attention to the colour assignment when installing
[⇒ page 257](#).

The quick coupling must »audibly« click in place when securing it.

- Check the quick couplings for firm seating by pulling in the opposite direction!



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2 Fuel delivery unit, fuel gauge sender

- ⇒ “2.1 Testing the fuel pump (Octavia II, Superb II)”, page 261
- ⇒ “2.1 Testing the fuel pump (Octavia II, Superb II)”, page 261
- ⇒ “2.3 Removing and installing fuel delivery unit (Superb II)”, page 265
- ⇒ “2.4 Removing and installing fuel delivery unit (Octavia II)”, page 268
- ⇒ “2.5 Removing and installing fuel tank for vehicles with four-wheel drive (Octavia II, Superb II)”, page 270
- ⇒ “2.6 Removing and installing fuel delivery unit (Fabia II, Roomster)”, page 274
- ⇒ “2.7 Removing and installing the sender for fuel gauge display G (Superb II)”, page 276
- ⇒ “2.8 Removing and installing the transmitter for fuel gauge display G (Octavia II)”, page 277
- ⇒ “2.9 Removing and installing the sender for fuel gauge display G (Fabia II, Roomster)”, page 279
- ⇒ “2.10 Removing and installing fuel gauge sender 2 G169 (Octavia II, Superb II)”, page 279
- ⇒ “2.11 Removing and installing suction spray pump (Octavia II, Superb II)”, page 282
- ⇒ “2.12 Removing and installing the tandem pump”, page 282
- ⇒ “2.13 Inspecting a tandem pump”, page 284

2.1 Testing the fuel pump (Octavia II, Superb II)

Special tools and workshop equipment required

- ◆ Remote control , e.g. -V.A.G 1348/3A-
- ◆ Measuring tool set , e.g. -V.A.G 1594 C-
- ◆ Adapter , e.g. -V.A.G 1318/16-
- ◆ Adapter , e.g. -V.A.G 1318/17-
- ◆ Measuring vessel

Checking the function and supply voltage

Test conditions

- Battery voltage at least 11.5 V.
- Fuses o.k. (No. 27).
- All electrical consumers such as the lights and rear window heater must be switched off.

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Test sequence

- Removing rear seat bench ⇒ Body Work; Rep. gr. 72 .
- Remove the cover from the fuel delivery unit.
- Switch on ignition. The fuel pump must be heard to start running.
- Switch off ignition.

If the fuel pump does not run:





- Continuing searching for faults using a multimeter e.g. - V.A.G 1715- ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

Check fuel flow rate

Test conditions

- Supply voltage o.k.
- Battery voltage at least 11.5 V.
- Fuel temperature 15...30 °C.
- Fuel tank at least 1/4 full.



Test sequence



Note

- ◆ *Safety precautions when working on the fuel supply system*
⇒ "2.1 Regulations concerning safety precautions when working on the fuel system", page 3 .
- ◆ *Observe the regulations concerning cleanliness when working on the fuel supply/injection system*
⇒ "3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system", page 6 .

- Switch off ignition and pull out ignition key.
- Unscrew the cap from the filler neck.
- Removing rear seat bench ⇒ Body Work; Rep. gr. 72 .
- Remove the cover from the fuel delivery unit.

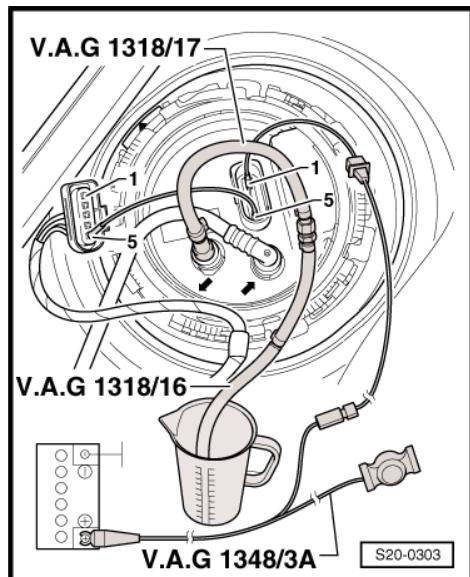


Note

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For vehicles with auxiliary heating, the plug connection for the dosing pump - V54- must be disconnected additionally.

- Unplug the 5-pin plug from the fuel delivery unit.
- Connect remote control -V.A.G 1348/3A- with connection lines from measuring tool set to contact -1- of the fuel pump and to battery positive terminal.
- Use connection lines from the measuring tool set to connect the contacts -5- to the plug and to the fuel pump.
- Pull off the fuel feed line from the flange of the fuel delivery unit.
- Connect adapter -V.A.G 1318/17- and -V.A.G 1318/16- to the fuel pump and hold in the measuring vessel.
- Activate remote control -V.A.G 1348/3A- for 30 seconds.





- Compare the fuel rate with the specified value.



Note

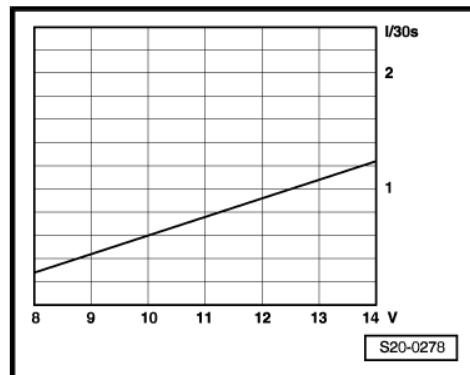
- ◆ The amount of the fuel pumped is dependent on the voltage.
- ◆ The diagram refers to the voltage which exists at the fuel pump.
- ◆ The voltage at the fuel pump is about 2 volts less than the battery voltage.

If the minimum flow rate is not reached:

- Remove the fuel delivery unit and check that the preliminary stage screen is not clogged up.

If no fault was detected until now:

- Replace fuel delivery unit.



2.2 Testing fuel pump (Fabia II, Roomster)

Special tools and workshop equipment required

- ◆ Pressure gauge , e.g. -V.A.G 1318-
- ◆ Hose adapter , e.g. -V.A.G 1318/16-
- ◆ Adapter set , e.g. -V.A.G 1318/17-
- ◆ Remote control , e.g. -V.A.G 1348/3A-
- ◆ Measuring vessel



Note

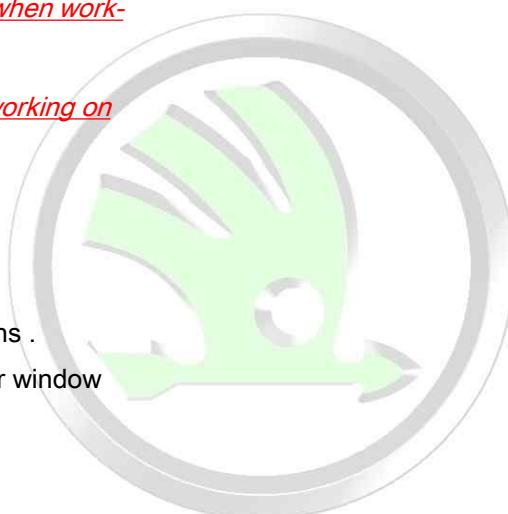
- ◆ Observe the safety instructions before starting fitting work
⇒ "2.1 Regulations concerning safety precautions when working on the fuel system", page 3 .
- ◆ Observe rules for cleanliness
⇒ "3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system", page 6 .

Checking the function and supply voltage

Test conditions

- Battery voltage at least 11.5 V.
- Fuses o.k. (No. 32 and 34) ⇒ Operating instructions .
- All electrical consumers such as the lights and rear window heater must be switched off.

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Test sequence

For vehicles Fabia II

- Fold back right rear seat vertically ⇒ Body Work; Rep. gr. 72 .

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For vehicles Roomster

- Fold back the middle and rear seat and position vertically ⇒ Body Work; Rep. gr. 72 .

Continued for all vehicles

- Remove the cover of the fuel delivery unit under the mat.



- Switch on ignition. The fuel pump must be heard to start running.
- Switch off ignition.

If the fuel pump does not run:

- Continuing searching for faults using a multimeter e.g. - V.A.G 1715- → Current flow diagrams, Electrical fault finding and Fitting locations.

Check fuel flow rate

Test conditions

- Supply voltage o.k.
- Battery voltage at least 11.5 V.
- Fuel temperature 15...30°C.
- Fuel tank at least 1/4 full.



Test sequence

- Unscrew the cap from the filler neck.

For vehicles Fabia II

- Fold back right rear seat vertically ⇒ Body Work; Rep. gr. 72 .

For vehicles Roomster

- Fold back the middle and rear seat and position vertically ⇒ Body Work; Rep. gr. 72 .

Continued for all vehicles

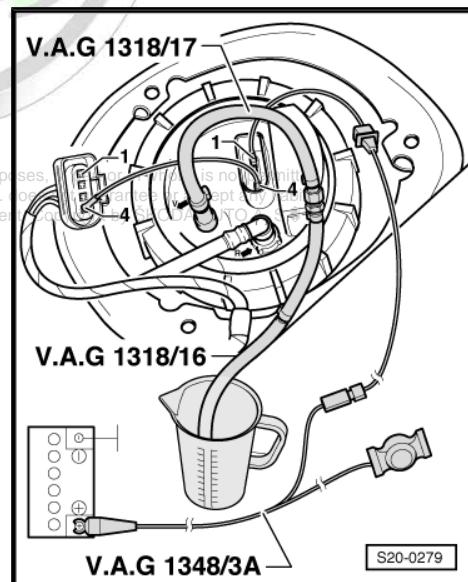
- Remove the cover from the fuel delivery unit.
- Unplug the 4-pin plug from the fuel delivery unit.
- Connect remote control -V.A.G 1348/3A- with connection lines from measuring tool set to contact -1- of the fuel pump and to battery +.
- Use connection lines from the measuring tool set to connect the contacts -4- to the plug and to the fuel pump.
- Pull off the fuel feed line and gather residual fuel in a cloth

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WARNING

The fuel feed line is pressurized! Place a clean cleaning cloth around the connection point before detaching hose connections. Reduce pressure by carefully releasing the connection point.



- Connect adapter -V.A.G 1318/17- and -V.A.G 1318/16- to the fuel pump and hold in the measuring vessel.
- Activate remote control -V.A.G 1348/3A- for 30 seconds.



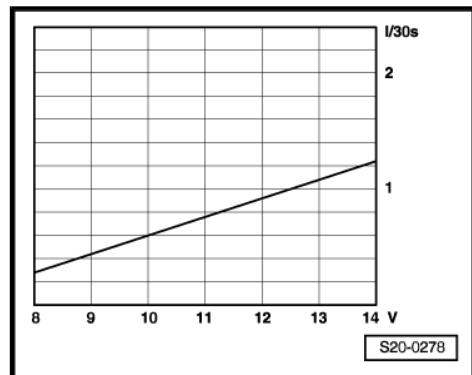
- Compare the amount of the fuel pumped to the specified value (the amount of the fuel pumped is dependent on the voltage at the fuel delivery unit).

If the minimum flow rate is not reached:

- Remove the fuel delivery unit and check that the preliminary stage screen is not clogged up.

If no fault was detected until now:

- Replace fuel delivery unit.



2.3 Removing and installing fuel delivery unit (Superb II)

Special tools and workshop equipment required

- ◆ Key - T30101 (3087)-
- ◆ Protective gloves

Precondition

- The fuel tank must not be more than $\frac{1}{3}$ full.

Removing



Note

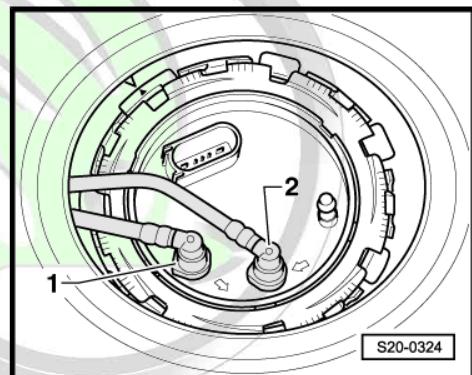
- ◆ If necessary drain the fuel tank
⇒ "1.9 Extract fuel from the fuel tank", page 245 .
- ◆ Safety precautions when working on the fuel supply system
⇒ "2.1 Regulations concerning safety precautions when working on the fuel system", page 3 .
- ◆ Observe the regulations concerning cleanliness when working on the fuel supply/injection system
⇒ "3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system", page 6 .

- Switch off ignition and pull out ignition key.
- Removing rear seat bench ⇒ Body Work; Rep. gr. 72 .
- Remove the cover from the fuel delivery unit.
- Disconnect the plug as well as the black feed line -1- and the blue return-flow line -2- from the flange.



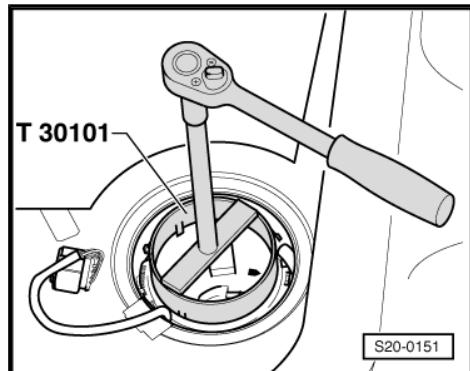
Note

- ◆ Press in the securing ring in order to unlock the lines.
- ◆ On vehicles with auxiliary heating the suction line for the dosing pump - V54- must be pulled out additionally (open lower clamp).





- Open lock ring with the wrench - T30101 - .

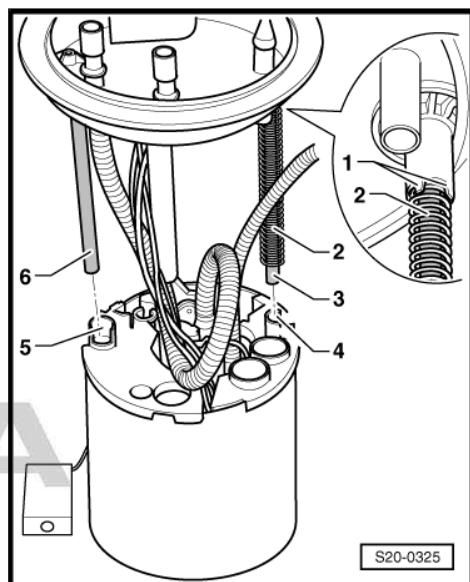


- Slightly raise the closing flange and check if the spring -2- is still fastened on the flange -1-.

If the spring -2- is loose on the guide pipe -3-, hold it with your fingers while removing the closing flange.

- Pull out closing flange and gasket ring of the fuel delivery unit from the opening of the fuel tank and place to the side with the connected lines.
- Remove the suction jet pump from the fuel gauge sender 2 - G169-

⇒ ["2.10 Removing and installing fuel gauge sender 2 G169 \(Octavia II, Superb II\)", page 279](#)



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- Separate through the opening of the fuel tank the fuel line -1- to the suction jet pump, to do so press the release button.
- Separate the fuel delivery line -2- from the fuel delivery unit.

Note

- ◆ You must wear protective gloves for removing the fuel delivery unit.
- ◆ Take the fuel delivery unit out of the fuel tank in such a way that the electrical cables and the fuel hoses are not damaged and that the float arm of the sender for the fuel gauge display - G- is not bent.
- ◆ You must empty the old delivery unit before disposing of it if you wish to replace the fuel delivery unit.

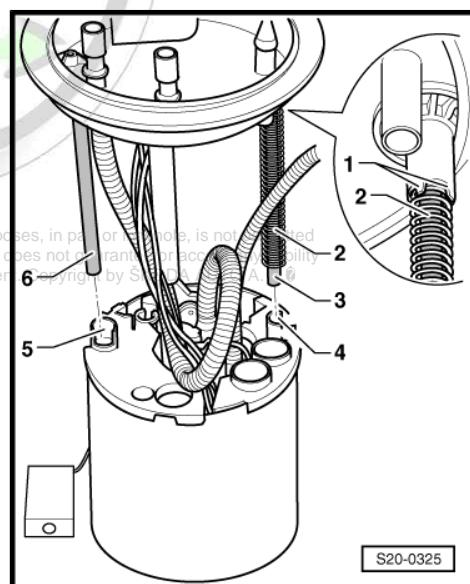
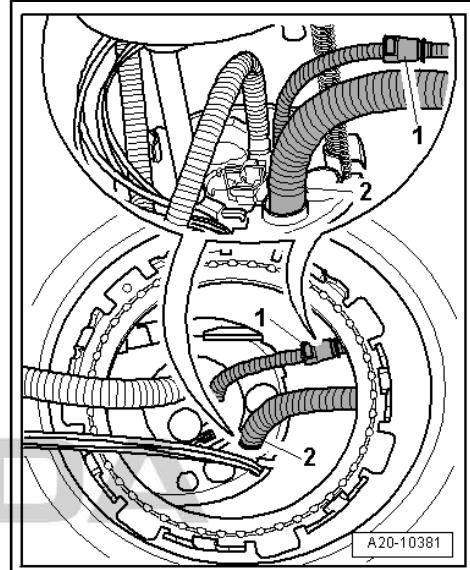
- Pull the fuel delivery unit out of the opening of the fuel tank.

Install

The installation of the fuel delivery unit occurs in the reverse order. However, pay attention to the following:

- Insert the fuel delivery unit into the fuel tank with the closing flange placed to the side. Thus, do not bend the float arm of the fuel gauge sender unit - G- .
- Install the fuel delivery unit and the fuel line.
- Insert the new dry gasket ring into the opening of the fuel tank and moisten only from the inside with fuel for installing the closing flange.
- The spring -2- must be fastened to the retaining lugs -1- of the closing flange.
- First of all guide the guide pipe -3- into the guide bore -4-.
- Then lower the closing flange in such a way that the guide pipe -6- locks into the guide bore -5-.

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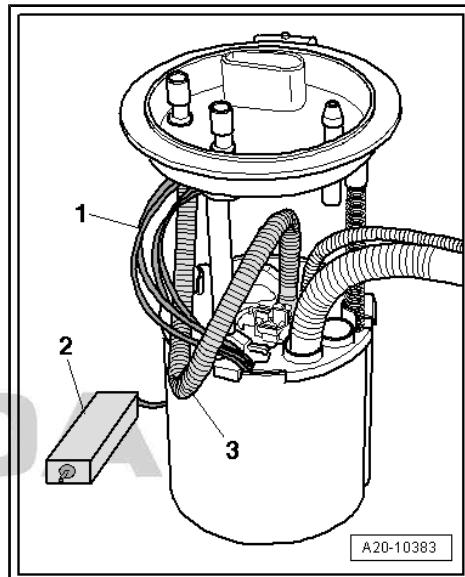
Note

Pay attention that the electrical cables -1- and the fuel feed line -3- are routed according to the illustration and the float arm -2- is not blocked.

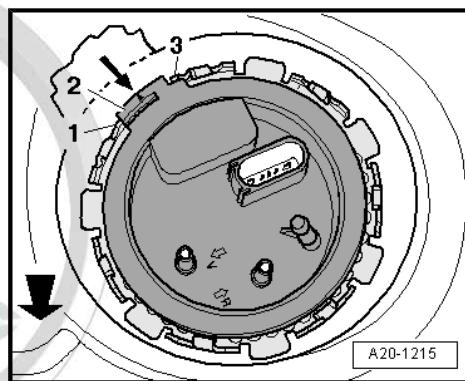
- Press the closing flange down and bring it into the installation position.

Further information:

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- ◆ Fitting location of the fuel delivery unit: The peg -2- at the closing flange must be located between the pegs -1- and -3-. The -arrow- shows the direction of travel.
- ◆ Tighten the lock ring to 110 Nm.
- ◆ Do not interchange feed line and return-flow line.
- ◆ Make sure the fuel lines fit tightly.
- ◆ After installing the fuel delivery unit, check whether the feed line and the return-flow line are still clipped in place on the fuel tank.



2.4 Removing and installing fuel delivery unit (Octavia II)

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- ◆ Key - T30101 (3087)- .

Precondition

- The fuel tank must not be more than $\frac{1}{3}$ full.

Removing

Note

- ◆ Drain the fuel tank
⇒ [“1.9 Extract fuel from the fuel tank”, page 245](#).
- ◆ Safety precautions when working on the fuel supply system
⇒ [“2.1 Regulations concerning safety precautions when working on the fuel system”, page 3](#).
- ◆ Observe the regulations concerning cleanliness when working on the fuel supply/injection system
⇒ [“3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system”, page 6](#).

- Switch off ignition and pull out ignition key.
- Removing rear seat bench ⇒ Body Work; Rep. gr. 72 .



- Remove the cover from the fuel delivery unit.



Note

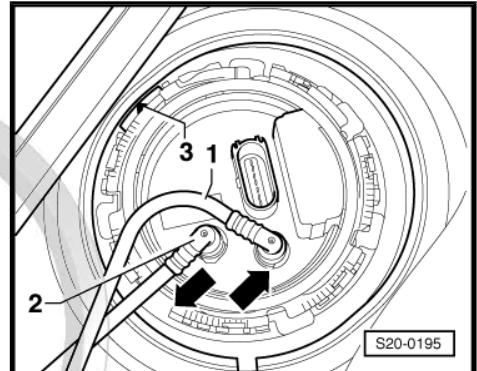
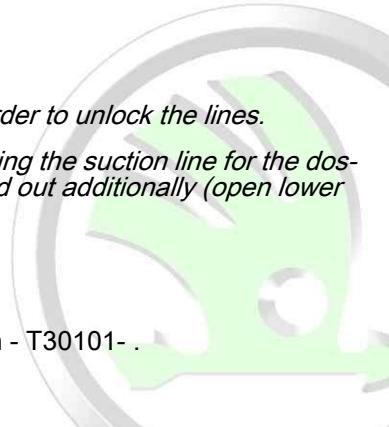
For vehicles with auxiliary heating, the plug connection for the dosing pump - V54- must be disconnected additionally.

- Disconnect the plug, the black feed line -2- and the blue return-flow line -1- from the flange.



Note

- ◆ Press in the securing ring in order to unlock the lines.
- ◆ On vehicles with auxiliary heating the suction line for the dosing pump - V54- must be pulled out additionally (open lower clamp).



- Open lock ring with the wrench - T30101- .

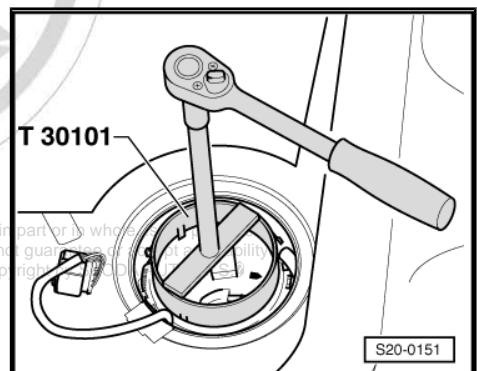


Note

When installing, ensure that the float arm of the sender for fuel gauge display - G- is not bent.

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- Pull the fuel delivery unit and the gasket ring out of the opening of the fuel tank.



Note

You must empty the old delivery unit before disposing of it if you wish to replace the fuel delivery unit.

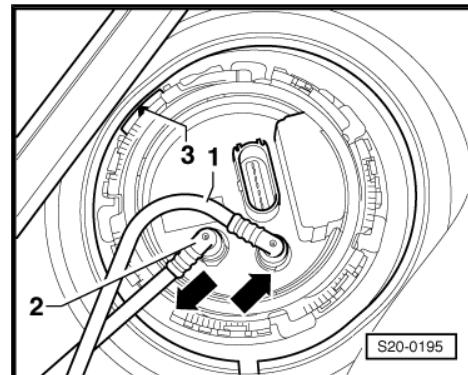
Install

The installation of the fuel delivery unit occurs in the reverse order. However, pay attention to the following:



Note

- ◆ Insert new dry gasket ring into the opening of the fuel tank.
- ◆ The gasket must only be moistened from inside with fuel before assembly of the fuel pump.
- ◆ When installing, do not bend the float arm of the fuel gauge sender unit - G- .
- ◆ Fitting location of the fuel delivery unit: The marking -3- on the flange must point against the direction of travel. The fuel delivery unit can only be installed in this position.
- ◆ Do not interchange feed line and return-flow line.
- ◆ Tighten the lock ring to 110 Nm.
- ◆ Make sure the fuel lines fit tightly.
- ◆ After installing the fuel delivery unit, check whether the feed line and the return-flow line are clipped in place on the fuel tank.



2.5 Removing and installing fuel tank for vehicles with four-wheel drive (Octavia II, Superb II)

Special tools and workshop equipment required

- ◆ Key - T30101 (3087)- .
- ◆ Protective gloves

Precondition

- The fuel tank must not be more than 1/3 full.
- Ignition is switched off and ignition key is withdrawn.

Removing

Note

- ◆ Drain the fuel tank
[⇒ "1.9 Extract fuel from the fuel tank", page 245](#).
- ◆ Safety precautions when working on the fuel supply system
[⇒ "2.1 Regulations concerning safety precautions when working on the fuel system", page 3](#) .
- ◆ Observe the regulations concerning cleanliness when working on the fuel supply/injection system
[⇒ "3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system", page 6](#) .

- Removing rear seat bench ⇒ Body Work; Rep. gr. 72 .
- Remove the cover from the fuel delivery unit.

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Note

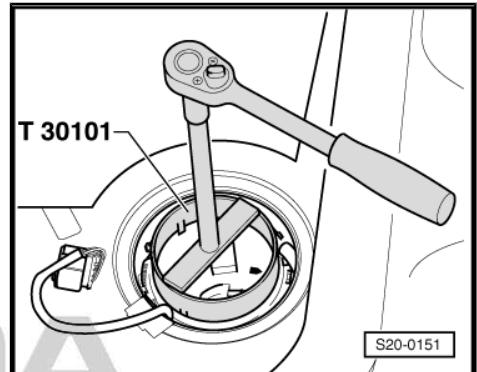
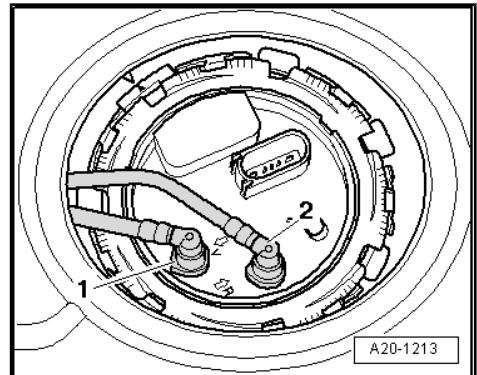
- ◆ For vehicles with auxiliary heating, the plug connection for the dosing pump - V54- must be disconnected additionally.
- ◆ Two types of fuel delivery units are installed in the vehicles, which can be recognized on the different flanges.

Fuel delivery unit type one

- Disconnect the plug, the black feed line -1- and the blue return-flow line -2- from the flange.

Note

- ◆ Press in the securing ring in order to unlock the lines.
- ◆ On vehicles with auxiliary heating the suction line for the dosing pump - V54- must be pulled out additionally (open lower clamp).



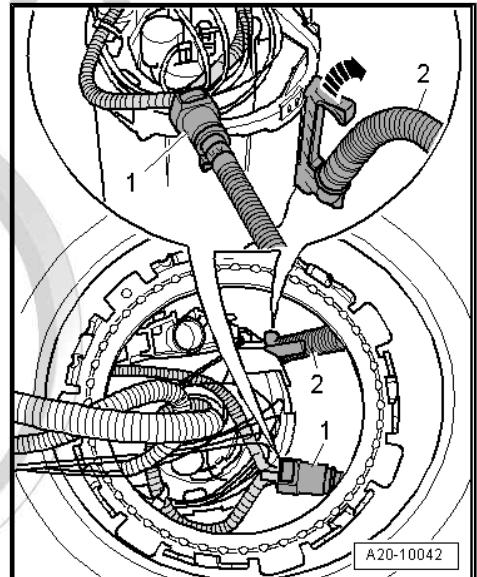
- Open lock ring with the wrench - T30101- .
- Pull closing flange and gasket ring for fuel pump out of the opening of the fuel tank and place to the side with the connected lines.

- Separate through the opening of the fuel tank the fuel line -1- to the suction jet pump, to do so press the release button.
- Unhook the fuel delivery line -2- at the fuel delivery unit, to do so pull the fixing clamp upwards -arrow-.

Note

- ◆ You must wear protective gloves for removing the fuel delivery unit.
 - ◆ Take the fuel delivery unit out of the fuel tank in such a way that the electrical cables and the fuel hoses are not damaged and that the float arm of the sender for the fuel gauge display - G- is not bent.
 - ◆ You must empty the old delivery unit before disposing of it if you wish to replace the fuel delivery unit.
- Pull the fuel delivery unit out of the opening of the fuel tank.

Fuel delivery unit type two



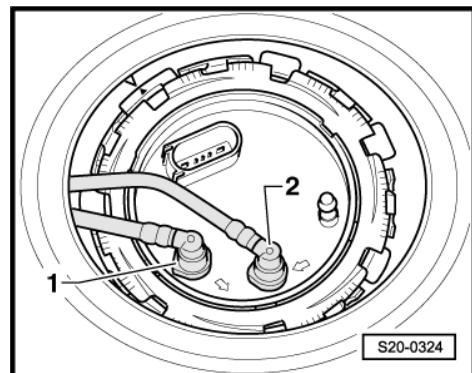
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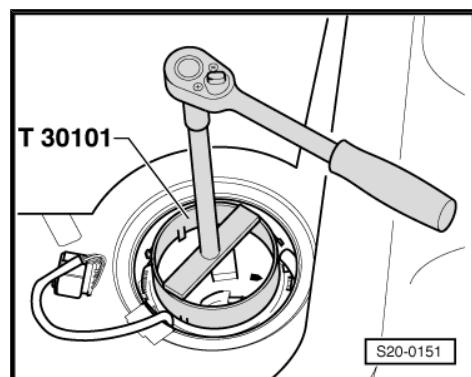
- Disconnect the plug, the black feed line -1- and the blue return-flow line -2- from the flange.

Note

- ◆ Press in the securing ring in order to unlock the lines.
- ◆ On vehicles with auxiliary heating the suction line for the dosing pump - V54- must be pulled out additionally (open lower clamp).



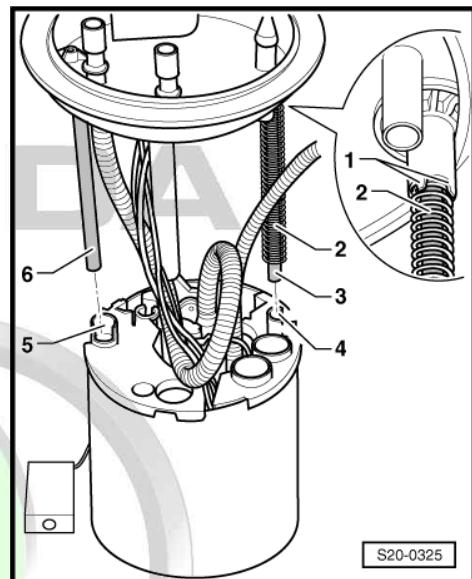
- Open lock ring with the wrench - T30101- .



- Slightly raise the closing flange and check if the spring -2- is still fastened on the flange -1-.

If the spring -2- is loose on the guide pipe -3-, hold it with your fingers while removing the closing flange.

- Pull closing flange and gasket ring for fuel pump out of the opening of the fuel tank and place to the side with the connected lines.





- Separate through the opening of the fuel tank the fuel line -1- to the suction jet pump, to do so press the release button.
- Separate the fuel delivery line -2- from the fuel delivery unit.

Note

- ◆ You must wear protective gloves for removing the fuel delivery unit.
- ◆ Take the fuel delivery unit out of the fuel tank in such a way that the electrical cables and the fuel hoses are not damaged and that the float arm of the sender for the fuel gauge display - G- is not bent.
- ◆ You must empty the old delivery unit before disposing of it if you wish to replace the fuel delivery unit.

- Pull the fuel delivery unit out of the opening of the fuel tank.

Install

The installation of the fuel delivery unit occurs in the reverse order. However, pay attention to the following:

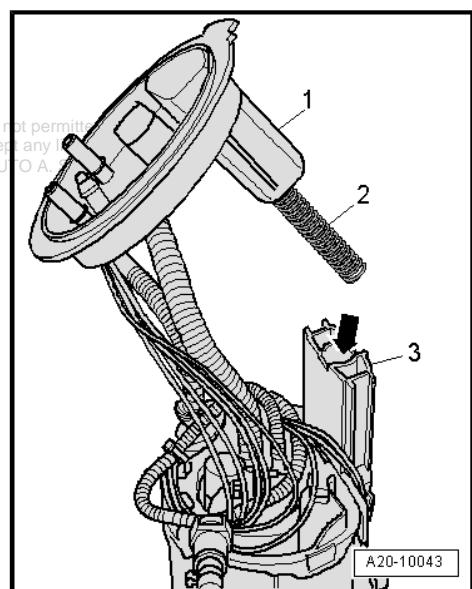
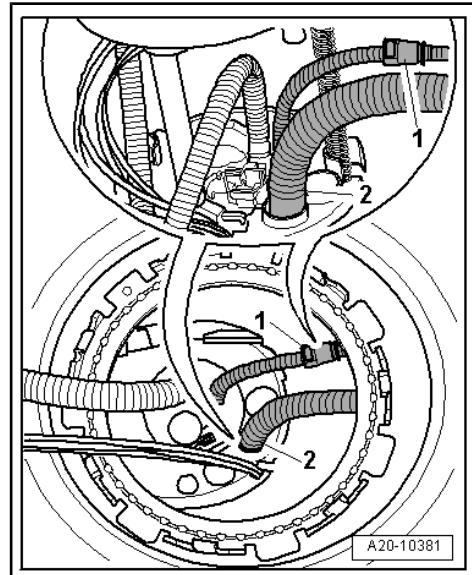
- Insert the fuel delivery unit into the fuel tank with the closing flange placed to the side. Thus, do not bend the float arm of the fuel gauge sender unit - G- .
- Install the fuel delivery unit and the fuel line.
- Insert the new dry gasket ring into the opening of the fuel tank and moisten only from the inside with fuel for installing the closing flange.

Fuel delivery unit type one

- Slide the spring -2- into the guide bore -arrow- and fit the cable -1- of the closing flange on the cable -3- of the fuel delivery unit.

Fuel delivery unit type two

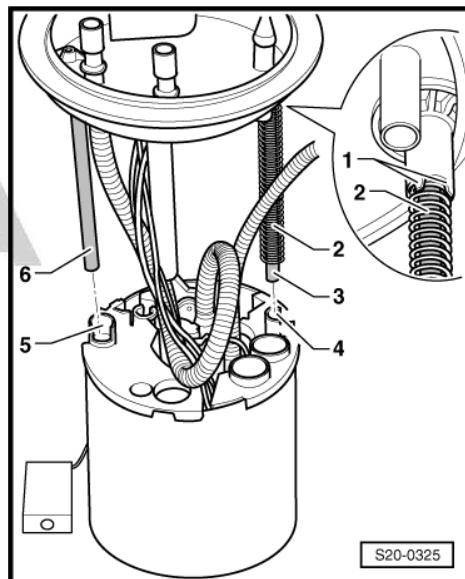
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- The spring -2- must be fastened to the retaining lugs -1- of the closing flange.
- First of all guide the guide pipe -3- into the guide bore -4-.
- Then lower the closing flange in such a way that the guide pipe -6- locks into the guide bore -5-.

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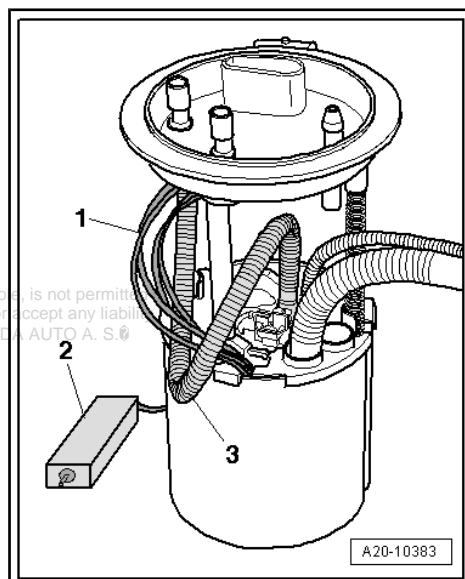
Note

Pay attention that the electrical cables -1- and the fuel feed line -3- are routed according to the illustration and the float arm -2- is not blocked.

Continue as follows for both types

- Press the closing flange down and bring it into the installation position.

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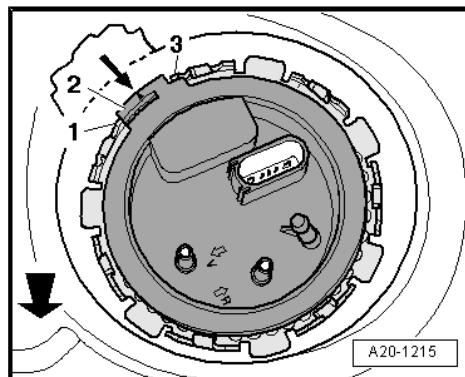


A20-10383



Note

- Fitting location of the fuel delivery unit: The peg -2- at the closing flange must be located between the pegs -1- and -3-. The arrow shows the direction of travel.*
- Tighten the lock ring to 110 Nm.*
- Do not interchange feed line and return-flow line.*
- Make sure the fuel lines fit tightly.*
- After installing the fuel delivery unit, check whether the feed line and the return-flow line are still clipped in place on the fuel tank.*



A20-1215

2.6 Removing and installing fuel delivery unit (Fabia II, Roomster)

Special tools and workshop equipment required

- Wrench for union nut - MP1-227 (3217)-



Conditions

- The fuel tank must not be more than 1/3 full.
- Ignition is switched off and ignition key is withdrawn.

Removing



Note

- ♦ *Drain the fuel tank*
⇒ "1.9 Extract fuel from the fuel tank", page 245.
- ♦ *Observe the safety instructions before starting fitting work*
⇒ "2.1 Regulations concerning safety precautions when working on the fuel system", page 3.
- ♦ *Observe rules for cleanliness*
⇒ "3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system", page 6.

For vehicles Fabia II

- Fold back right rear seat vertically ⇒ Body Work; Rep. gr. 72 .

For vehicles Roomster

- Fold back the middle and rear seat and position vertically ⇒ Body Work; Rep. gr. 72 .

Continued for all vehicles

- Remove the cover from the fuel delivery unit.
- Unplug the 4-pin plug from the fuel delivery unit.



WARNING

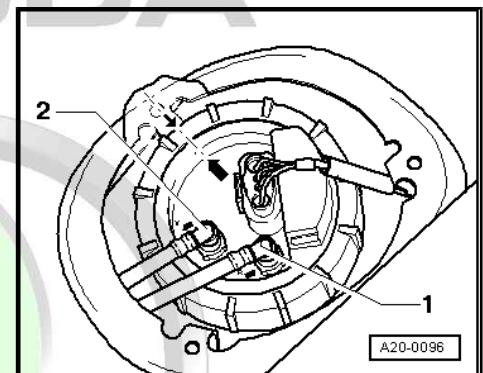
The fuel system is under pressure! Place a clean cleaning cloth around the connection point before detaching hose connections. Reduce pressure by carefully removing the hose.



Note

Press together the securing ring on the front side of the angular connection in order to unlock the fuel line.

- Remove feed line (black) -2- and return-flow line (blue) -1- from the flange of the delivery unit. To do so press the release buttons.



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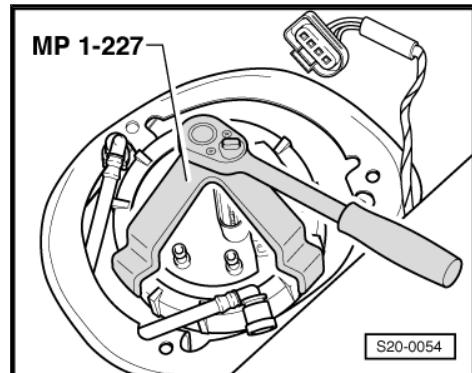


- Unscrew union nut with wrench -MP1-227- .
- Pull the fuel delivery unit and the gasket ring out of the opening of the fuel tank.



Note

The old delivery unit must be emptied before disposing of it if it should be replaced.



Install

- The fuel delivery unit is installed in the reverse order. Pay attention to the following:



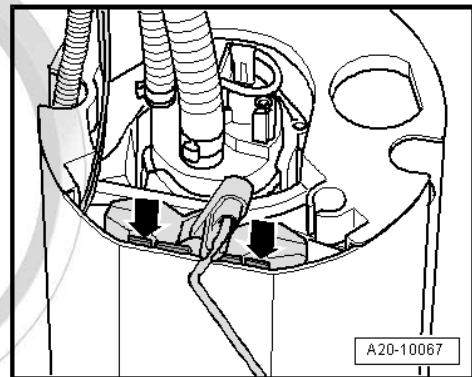
Note

- ◆ When installing, do not bend the float arm of the fuel gauge sender unit.
- ◆ Only moisten from the inside the seal of the flange with fuel for fitting purposes.
- ◆ Do not interchange feed line and return-flow line.
- ◆ Make sure the fuel lines fit tightly.

2.7 Removing and installing the sender for fuel gauge display - G- (Superb II)

Removing

- Remove fuel delivery unit
[⇒ "2.3 Removing and installing fuel delivery unit \(Superb II\)", page 265](#) .
- Unlock the securing tabs -arrows- using a screwdriver and pull out the sender for fuel gauge display - G- towards the top.



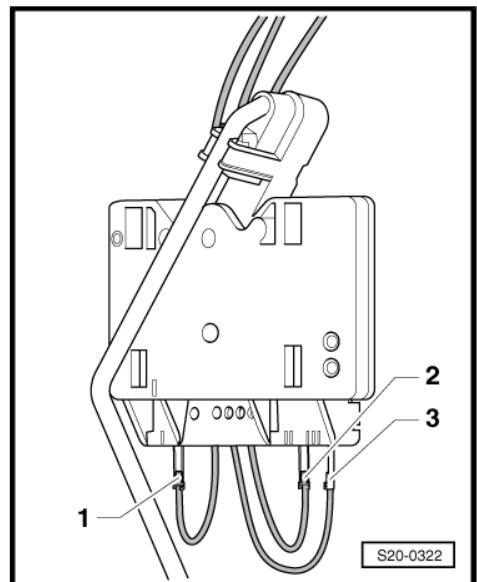
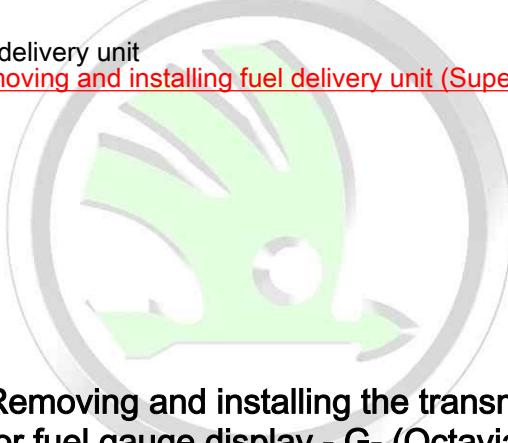
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- Unlatch and disconnect the plug connection of the lines -1- (brown), -2- (blue) and -3- (black).

Install

- Connect the wiring and check correct installation of the plug.
- Insert the sender for fuel gauge display - G- in the guides at the fuel delivery unit and press downwards until it latches into position.
- Install fuel delivery unit
 ⇒ [“2.3 Removing and installing fuel delivery unit \(Superb II\)”, page 265](#).



2.8 Removing and installing the transmitter for fuel gauge display - G- (Octavia II)

- Switch off ignition and pull out ignition key.

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There are two types of senders for the fuel gauge display - G- installed in the vehicles.

Sender for fuel gauge display - G- type 1

Removing

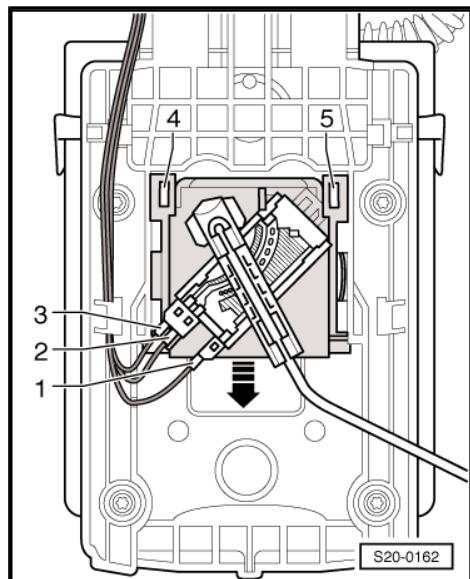
- Remove fuel delivery unit:
 - ◆ Vehicles with front-wheel drive
 ⇒ [“2.4 Removing and installing fuel delivery unit \(Octavia II\)”, page 268](#) .
 - ◆ Vehicles with four-wheel drive
 ⇒ [“2.5 Removing and installing fuel tank for vehicles with four-wheel drive \(Octavia II, Superb II\)”, page 270](#) .



- Unlatch and disconnect the plugs of the electrical cables -1- (brown), -2- (blue) and -3- (black).
- Raise securing tabs -4- and -5- with a screwdriver and remove the sender for fuel gauge display - G- downwards -arrow-.

Install

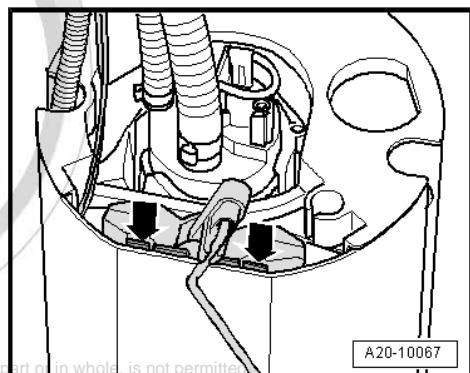
- Insert the sender for the fuel gauge display - G- in the guides at the fuel delivery unit and press upwards until it latches into position.
- Connect the el. wiring and check correct installation of the plug.
- Install fuel delivery unit.
- ◆ Vehicles with front-wheel drive
[⇒ "2.4 Removing and installing fuel delivery unit \(Octavia II\)", page 268 .](#)
- ◆ Vehicles with four-wheel drive
[⇒ "2.5 Removing and installing fuel tank for vehicles with four-wheel drive \(Octavia II, Superb II\)", page 270 .](#)



Sender for fuel gauge display - G- type 2

Removing

- Remove fuel delivery unit:
- ◆ Vehicles with front-wheel drive
[⇒ "2.4 Removing and installing fuel delivery unit \(Octavia II\)", page 268 .](#)
- ◆ Vehicles with four-wheel drive
[⇒ "2.5 Removing and installing fuel tank for vehicles with four-wheel drive \(Octavia II, Superb II\)", page 270 .](#)
- Unlock the securing tabs -arrows- using a screwdriver and pull out the sender for fuel gauge display - G- towards the top.



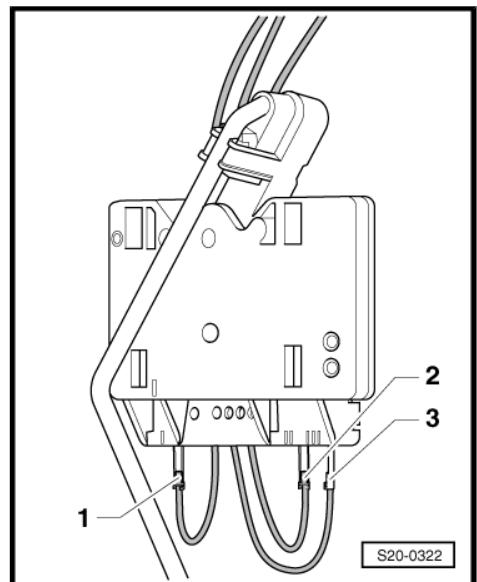
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- Unlatch and disconnect the plugs of the electrical cables -1- (brown), -2- (blue) and -3- (black).

Install

- Connect the el. wiring and check correct installation of the plug.
- Insert the sender for fuel gauge display - G- in the guides at the fuel delivery unit and press downwards until it latches into position.
- Install fuel delivery unit:
 - ◆ Vehicles with front-wheel drive
⇒ [“2.4 Removing and installing fuel delivery unit \(Octavia II\)”, page 268](#).
 - ◆ Vehicles with four-wheel drive
⇒ [“2.5 Removing and installing fuel tank for vehicles with four-wheel drive \(Octavia II, Superb II\)”, page 270](#).



2.9 Removing and installing the sender for fuel gauge display - G- (Fabia II, Roomster)

Removing

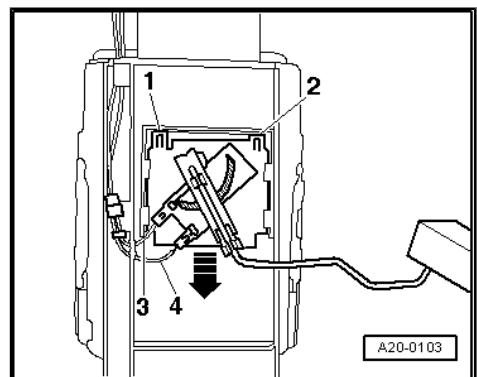
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When installing, observe the routing of the line connections.

- Unlatch and disconnect the contact studs of the el. wiring -3- and -4-.
- Raise securing tabs -1- and -2- with a screwdriver and pull off the sender for fuel gauge display towards the bottom -arrow-.

Install

- Insert the sender for fuel gauge display - G- into the guides on the fuel delivery unit and press upwards until the securing tabs latch into position.
- Connect the contact studs of the el. wiring -3- and -4-.
- Install fuel delivery unit
⇒ [“2.6 Removing and installing fuel delivery unit \(Fabia II, Roomster\)”, page 274](#).



2.10 Removing and installing fuel gauge sender 2 - G169- (Octavia II, Superb II)

- The fuel tank must not be more than $\frac{1}{2}$ full.

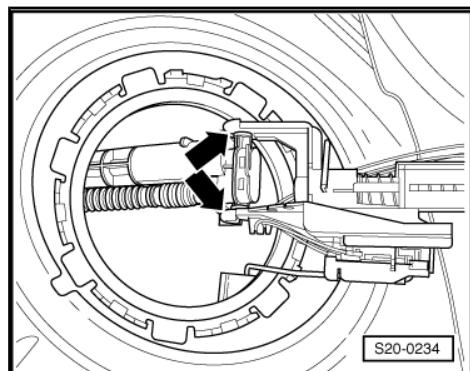
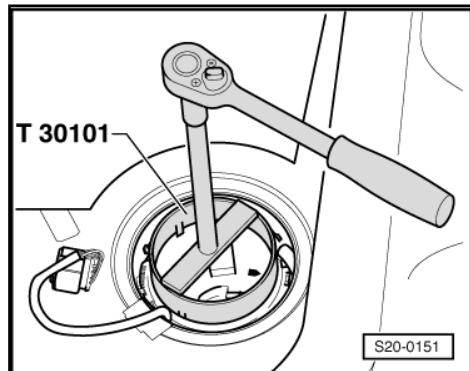


Note

- ◆ If necessary drain the fuel tank
 ⇒ ["1.9 Extract fuel from the fuel tank", page 245](#) .
- ◆ Safety precautions when working on the fuel supply system
 ⇒ ["2.1 Regulations concerning safety precautions when working on the fuel system", page 3](#) .
- ◆ Observe the regulations concerning cleanliness when working on the fuel supply/injection system
 ⇒ ["3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system", page 6](#) .
- ◆ Make sure that the fuel gauge sender is not tilted.

Removing

- Switch off ignition and pull out ignition key.
- Removing rear seat bench ⇒ Body Work; Rep. gr. 72 .
- Remove left cover and disconnect plug from fuel gauge sender 2 - G169- .
- Unlock lock ring with wrench -T30101 (3087)- .



- Slightly pull fuel gauge sender 2 - G169- out of the opening of the fuel tank, unlock securing tabs -arrows- and disconnect suction jet pump.

Install

- Installation is carried out in the reverse order. Pay attention to the following:



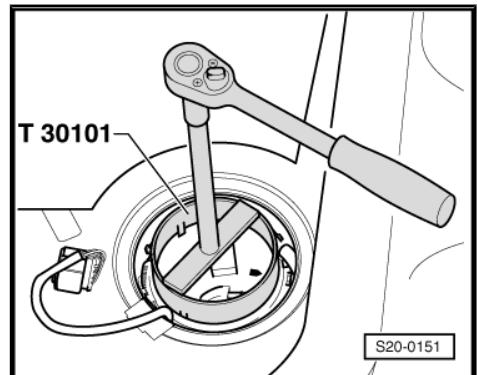
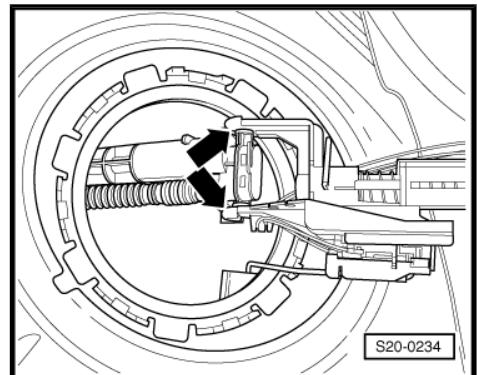
WARNING

When installing do not bend the float arm of the fuel gauge sender 2 -G169- .

- Insert the fuel gauge sender 2 -G169- into the fuel tank.



- Fit the suction jet pump in the fuel tank onto the fuel gauge transmitter 2 - G169- and push it in until the securing tabs -arrows- latch into position.
- Insert new dry gasket ring for the flange into the opening of the fuel tank and only moisten the inside (towards the flange) with fuel.
- Check the fitting position and insert the flange for fuel gauge sender 2 - G169- into the opening of the fuel tank:
 - ◆ Superb II
 ⇒ Fig. "Fitting position of the flange of the fuel delivery unit (with fuel gauge sender -G-) and the flange with fuel gauge sender 2 -G169-", page 230 .
 - ◆ Octavia II
 ⇒ Fig. "Fitting position of the flange of the fuel delivery unit (with fuel gauge sender -G-) and the flange with fuel gauge sender 2 -G169-", page 235 .
- Check correct positioning of gasket ring.
- Tighten the lock ring with wrench -T30101 (3087)- to 110 Nm.
- Fit on plug and install left cover.



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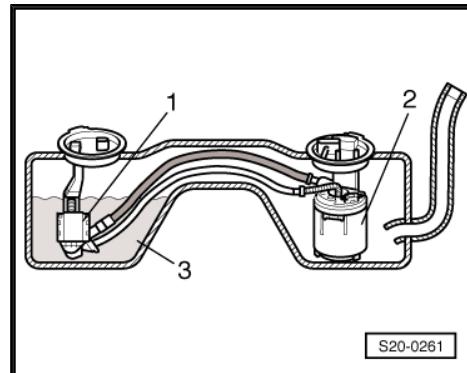


2.11 Removing and installing suction spray pump (Octavia II, Superb II)



Note

- ◆ The fuel tank consists of a left and right chamber. In order to pump the fuel out of the left chamber -3- of the fuel tank into the right chamber to the housing of the delivery unit -2-, a suction jet pump -1- is required.
- ◆ The version of the fuel tank requires that the fuel is pumped from the area of the fuel gauge sender 2 - G169- with a suction jet pump to the fuel delivery unit.
- ◆ A check is only to be carried out, if the engine stops because of fuel shortage, although the fuel gauge still indicates a fuel tank which is $\frac{1}{4}$ full.



S20-0261

Work procedure

- Remove fuel delivery unit:
- ◆ Octavia II
 ⇒ ["2.5 Removing and installing fuel tank for vehicles with four-wheel drive \(Octavia II, Superb II\)", page 270](#) .
- ◆ Superb II
 ⇒ ["2.3 Removing and installing fuel delivery unit \(Superb II\)", page 265](#) .
- Remove fuel gauge transmitter 2 - G169-
 ⇒ ["2.10 Removing and installing fuel gauge sender 2 G169 \(Octavia II, Superb II\)", page 279](#) .
- Now the suction jet pump can be pulled out from the side of the fuel gauge sender 2 - G169- (left vehicle side).
- Check, if the fuel lines on the suction jet pump are placed on firmly and not damaged.
- Check the suction jet pump additionally for possible contamination.

2.12 Removing and installing the tandem pump

Special tools and workshop equipment required

- ◆ Hand vacuum pump, e.g. -VAS 6213- or VAS 5226
- ◆ Pliers for spring strap clamps



WARNING

The tandem pump must not be disassembled, otherwise the proper operation of the pump vacuum part is no longer assured. This will result in a failure of the brake booster.

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Caution

Observe instructions for re-installing a used tandem pump
[⇒ page 286](#).



Conditions

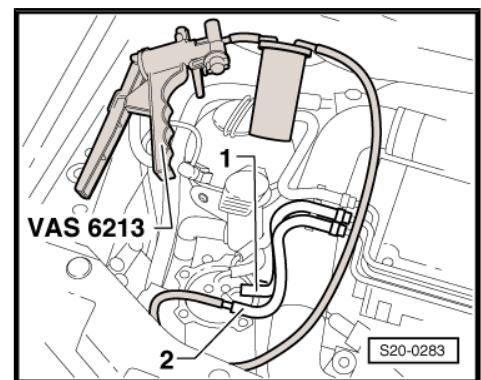
- Ignition is switched off and ignition key is withdrawn.

Removing

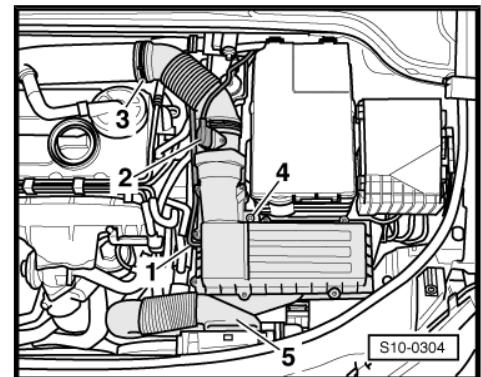
Note

- ◆ *Safety precautions when working on the fuel supply system*
⇒ "2.1 Regulations concerning safety precautions when working on the fuel system", page 3 .
- ◆ *Observe the regulations concerning cleanliness when working on the fuel supply/injection system*
⇒ "3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system", page 6 .

- Separate feed hose -1- (marked in white) and return-flow hose -2- (marked in blue) from the fuel filter.
- Connect hand vacuum pump with ventilation reservoir, e.g. - VAS 6213- , to the return hose -2-.
- Generate vacuum with hand vacuum pump until there is no more fuel from the return-flow pipe. Ensure that no fuel is drawn into the hand vacuum pump.



- Unplug connector -2- from the air mass meter -G70- .
- Disconnect ventilation hose -1- and air guide hoses -3- and -5-.
- Release screw -4- and remove air filter.



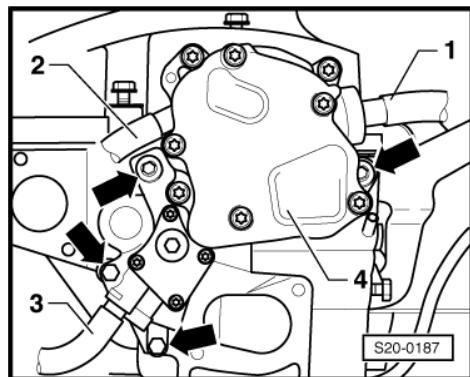
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- Separate vacuum line -1- for brake servo unit from tandem pump -4-.
- Pull out the central plug for the unit injectors.
- Separate feed hose -2- (marked in white) and return-flow hose -3- (marked in blue) on the tandem pump -4-.
- Unscrew securing bolts -arrows-.
- Remove tandem pump -4- from cylinder head.

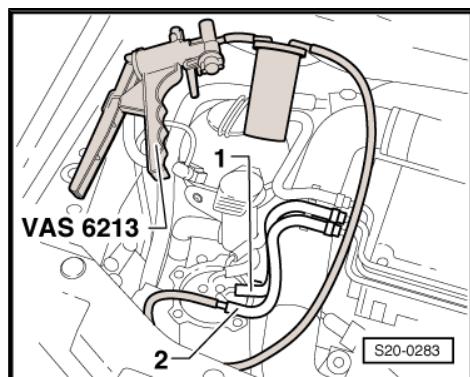
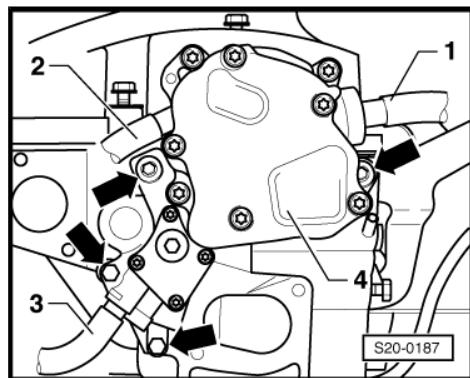
Install

Installation is performed in the reverse order, pay attention to the following points:



- ◆ Ensure the tandem pump coupling is correctly inserted into the camshaft.
- ◆ Always replace the tandem pump seals.

- Connect return-flow hose -3- (marked in blue) to the return-flow coupling of the tandem pump.
- Install tandem pump and tighten the top fixing screws M8 to 20 Nm.
- Tighten M6 fixing screws to 8 Nm.
- Connect the feed hose -2- (marked in white) to the feed connection and the vacuum line -1- of the brake servo unit to the tandem pump -4-.
- Connect central plug for unit injectors.
- Install charge air pipe and air filter.
- Connect the hand vacuum pump with the ventilation reservoir, e.g. -VAS 6213-, to the return-flow hose -2- (blue marking) of the fuel filter.
- Generate vacuum with hand vacuum pump until there is no more fuel from the return-flow pipe. Ensure that no fuel is drawn into the hand vacuum pump.
- Connect return-flow hose -2- (marked in blue) to fuel filter.



Faults are stored as a result of separating the central plug connection for the unit injector. Therefore, interrogate event memory and erase if necessary ⇒ Vehicle diagnostic tester.

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2.13 Inspecting a tandem pump

Special tools and workshop equipment required

- ◆ Tandem pump testing device - VAS 5187-
- ◆ Pliers for spring strap clamps
- ◆ Hose clamp - MP7-602 (3094)-

Test conditions

- The coolant temperature must be at least 85°C.



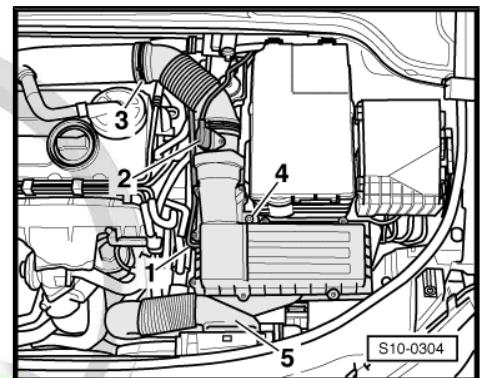
- Unit injectors O.K.
- Fuel filter and fuel line must not be blocked.

Work procedure

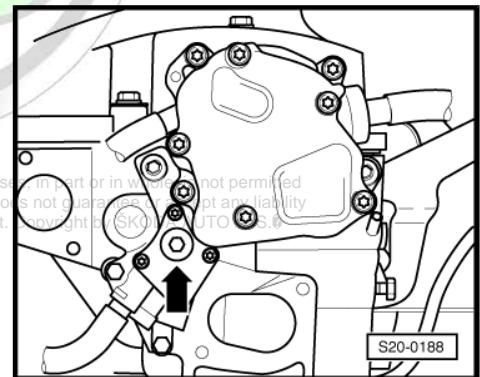
Note

- ◆ *Safety precautions when working on the fuel supply system*
⇒ "2.1 Regulations concerning safety precautions when working on the fuel system", page 3 .
- ◆ *Observe the regulations concerning cleanliness when working on the fuel supply/injection system*
⇒ "3.3 Regulations concerning cleanliness when working on the fuel supply/fuel injection system", page 6 .

- Unplug connector -2- from the air mass meter -G70- .
- Detach ventilation hose -1-, intake hose -3- and air guide -5-.
- Release screw -4- and remove air filter.



- Release screw plug -arrow-.



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- Connect pressure gauge -VAS 5187- as shown.
- Start engine and run in idle.
- Note the pressure shown on the pressure gauge. Specified value: at least 3.5 bar (0.35 MPa)
- Engine speed must increase to 4000 rpm.
- Note the pressure shown on the pressure gauge. Specified value: at least 7.5 bar (0.75 MPa)

If the nominal value of min. 7.5 bar (0.75 MPa) is not reached:

- Close return-flow line between tandem pump and fuel filter with hose clamp -MP7-602 (3094)- .
- Start engine and engine speed must increase to 4000 rpm.
- Note the pressure shown on the pressure gauge. Specified value: at least 0.75 MPa (7.5 bar)

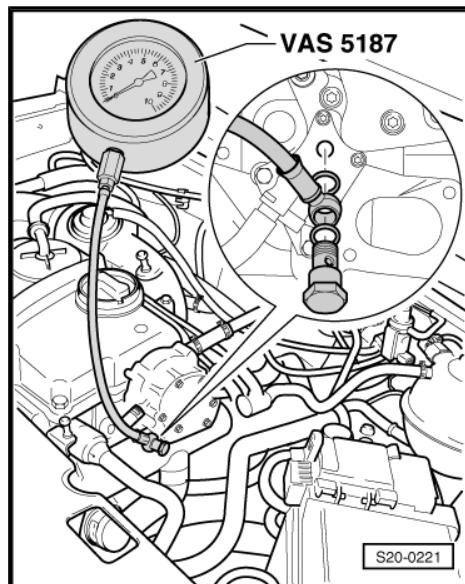
If the specified value is reached:

Pressure loss at the unit injectors.

- Replace O-rings for unit injectors.

If the specified value is still not reached:

- Replace tandem pump
*⇒ "2.12 Removing and installing the tandem pump",
 page 282 .*



Note

After removing the pressure gauge, tighten the screw plug to 25 Nm. Always replace the gasket ring.



Check tightness (internally) of tandem pump



Note

After re-installing an already used tandem pump e.g. after changing or repairing the cylinder head and/or after changing an engine without component parts, the tandem pump must be absolutely checked for internal tightness between fuel and oil part. In case of leakage the fuel penetrates into the engine oil, which can cause severe engine damage.



Special tools and workshop equipment required

- ◆ Tester - V.A.G 1687-

Work procedure

- Disconnect the fuel intake hose (white marking) and the fuel return-flow hose (blue marking) from the tandem pump.
- Close fuel return-flow connection at tandem pump with a plug.
Secure plugs with spring strap clips.

Prepare tester -V.A.G 1687- as follows:



The rotary knob must be slightly pulled to the top in order to rotate the pressure control valve -2-.

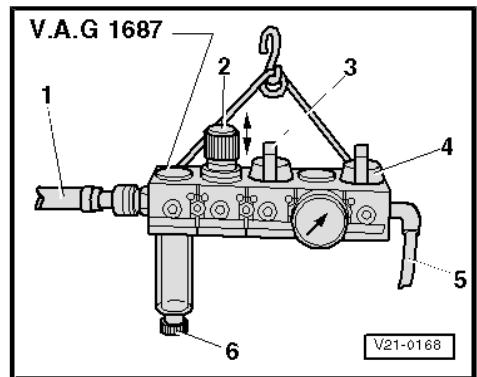


- Unscrew pressure control valve -2- fully and close the valves -3- and -4-.
- Connect hose with compressed air -1- (compressed air supply) to tester -V.A.G 1687- .

Note

If there is water in the inspection glass, drain water via the drain plug -6-.

- Connect test connection -5- with a commercially available connection for compressed air und a piece of fuel hose to the connection of the fuel feed line for the tandem pump. To secure, use a spring strap clamp.
- Open valve -3-.
- Set the pressure to 1.0 bar (0.1 MPa) with the pressure control valve -2-



WARNING

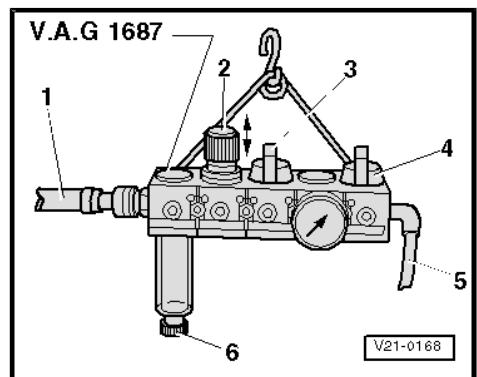
The maximum test pressure is 1.3 bar (0.13 MPa) and must not be exceeded.

- Open valve -4- and wait until the test circuit is filled. If necessary regulate the pressure to 1.0 bar (0.1 MPa).
- Close the valve -3- to maintain the pressure and observe the drop in pressure over a period of 1 minute.

If no drop in pressure is detected, the tandem pump can be used again.

In case of drop in pressure:

- Replace tandem pump
⇒ "2.12 Removing and installing the tandem pump", page 282.



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3 Accelerator control

⇒ “3.1 Summary of components - accelerator pedal module (Octavia II, Superb II)”, page 288

⇒ “3.2 Summary of components - accelerator pedal module (Fabia II, Roomster)”, page 289

⇒ “3.3 Removing and installing accelerator pedal module (Octavia II, Superb II)”, page 289

3.1 Summary of components - accelerator pedal module (Octavia II, Superb II)

1 - Connector

- black
- 6-pin

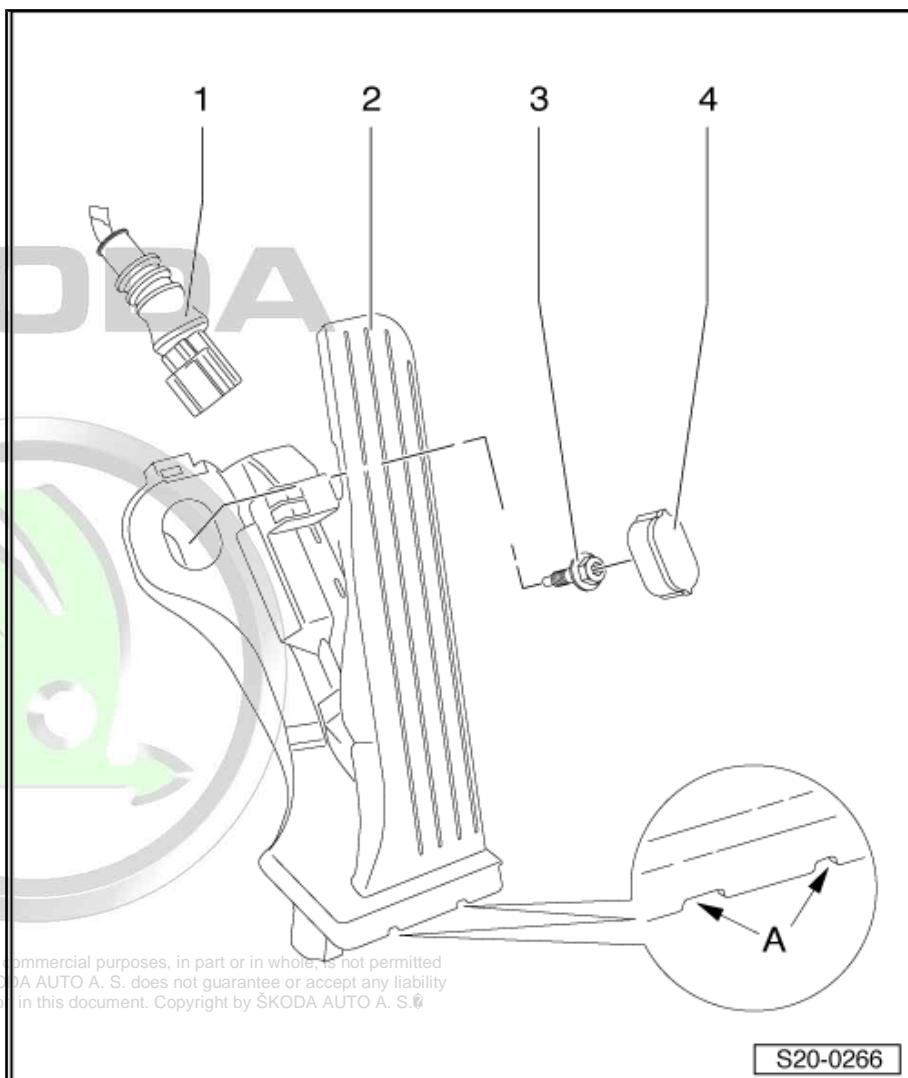
2 - Accelerator pedal module

- with accelerator pedal position sender -G79- and accelerator pedal position sender 2 - G185-
- not adjustable
- A- are openings for the release tool
- removing and installing
⇒ “3.3 Removing and installing accelerator pedal module (Octavia II, Superb II)”, page 289
- when replacing, the engine control unit must be adapted ⇒ Vehicle diagnostic tester on vehicles with automatic gearbox

3 - Screw

- 10 Nm

4 - Cap





3.2 Summary of components - accelerator pedal module (Fabia II, Roomster)

1 - Bearing bracket

- removing and installing
⇒ Chassis; Rep. gr. 46

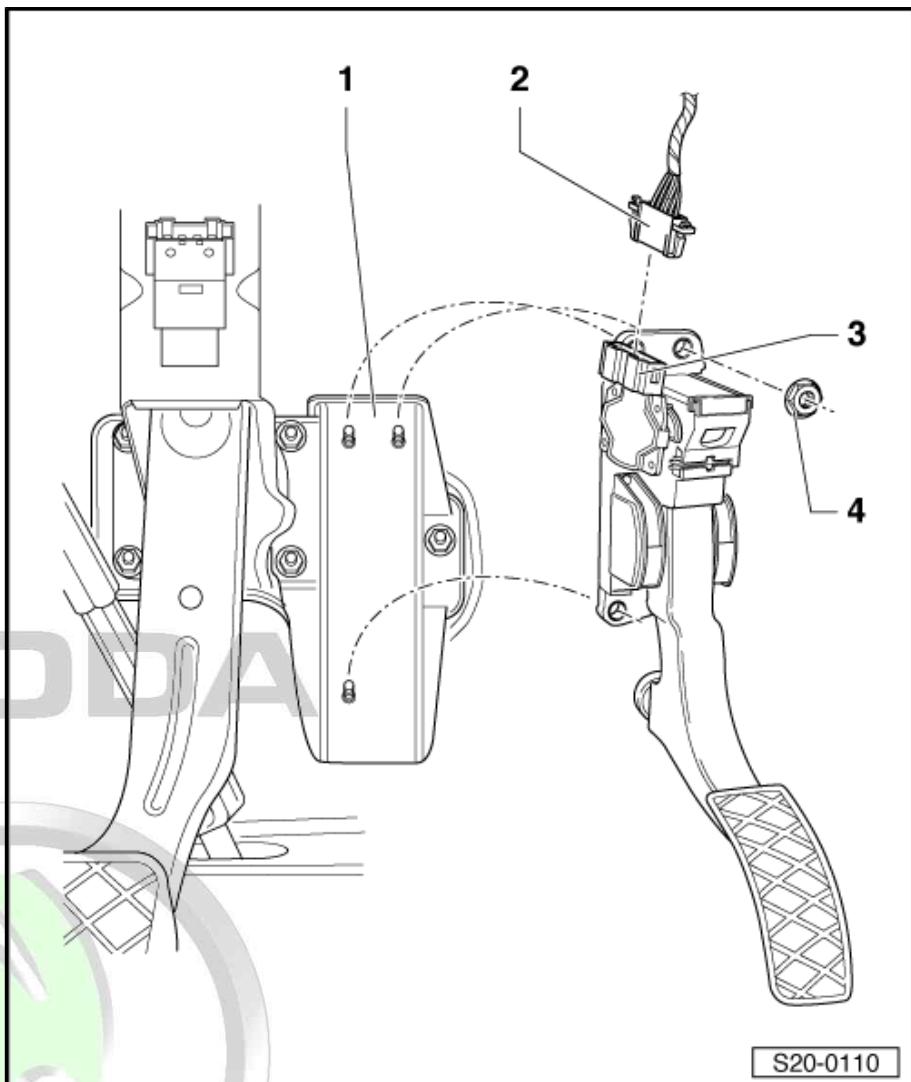
2 - Connector

3 - Accelerator pedal position sender - G79-

- not adjustable
- the accelerator pedal sender transmits the driver's instructions (by depressing the brake pedal) to the engine control unit
- to remove the sender remove the bottom part of the dash panel (driver's side)
- checking ⇒ Vehicle diagnostic tester.

4 - Nut

- 9 Nm



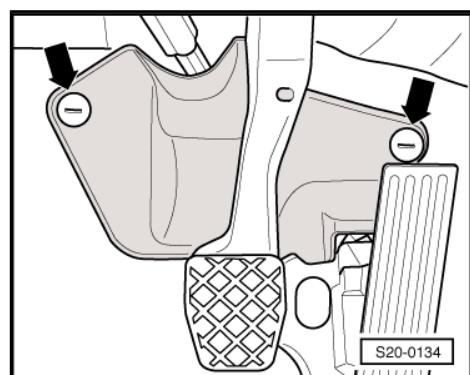
3.3 Removing and installing accelerator pedal module (Octavia II, Superb II)

Special tools and workshop equipment required

- ◆ Release tool - T10238- or -T10240-

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– **Remove steering column cover -arrows-**

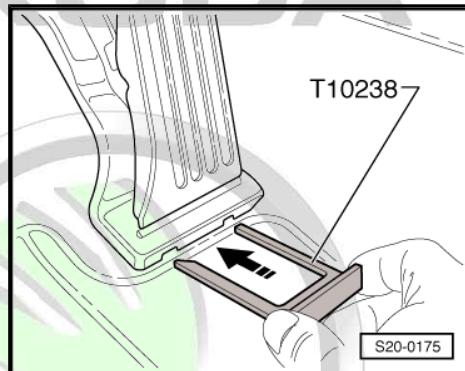
- Disconnect connector at accelerator pedal module
⇒ “[3.3.1 Disconnect connector for accelerator pedal module and fit on](#)”, page 290 .
- Remove cap in module upwards.
- Unscrew securing bolt.





- Insert release tool -T10238- (on vehicles with right-hand drive, release tool -T10240-) in the corresponding openings up to the stop.
- Remove accelerator pedal module.

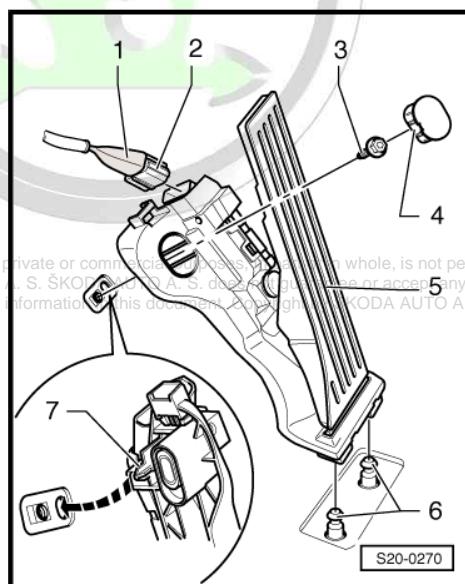
Install



- Fit the plug -2- onto the accelerator pedal module -5-
⇒ "3.3.1 Disconnect connector for accelerator pedal module and fit on", page 290 .

The locking of the connector must be audible.

- Push again rubber grommet -1- onto the connector -2-.
- Push accelerator pedal module onto the fixing bolts -6-.
- Insert the centering pin -7- into the hole in the underbody.
- Screw on accelerator pedal module with fixing screws -3-, tighten to 10 Nm and push on cap -4-.
- Install steering column cover.
- If the accelerator pedal module was replaced, an adaptation of the engine control unit has to be performed on vehicles with automatic gearbox ⇒ Vehicle diagnostic tester.



3.3.1 Disconnect connector for accelerator pedal module and fit on

(Octavia II, Superb II)

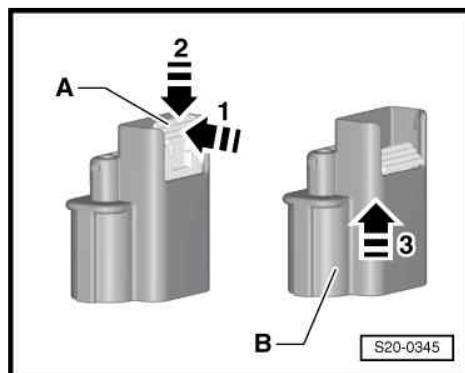


The plugs for the accelerator pedal module which are inserted, must be disconnected and fit on in a different manner.

Disconnect connector 1K0 973 706

- Slightly press the piston slide valve -A- (grey) in direction of arrow -1- and push it up to the stop in direction of arrow -2-.
- Hold the piston slide valve in this position and disconnect the socket housing -B- towards the top in direction of arrow -3-.

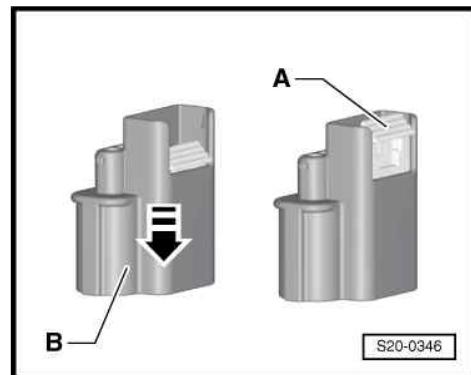
The piston slide valve -A- remains in the bottom position.





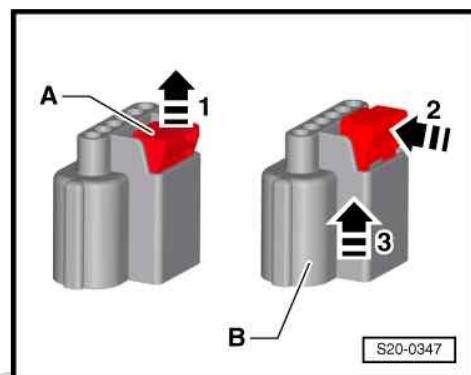
Fit on connector 1K0 973 706

- Push the socket housing -B- down in -direction of arrow- until the housing can be heard to lock in place.
The piston slide valve -A- moves automatically upwards.
- For safety reasons, check the connector for secure catch by tightening it in the opposite direction.



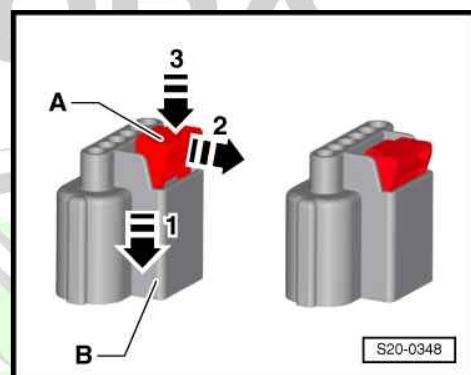
Disconnect connector 8K0 973 706

- Pull the piston slide valve -A- (red) upwards in direction of arrow -1- up to the stop.
 - Press the piston slide valve in direction of arrow -2- and disconnect the socket housing -B- in direction of arrow -3-.
- The piston slide valve -A- remains in the top position.



Fit on connector 8K0 973 706

- Push the socket housing -B- downwards up to the stop in direction of arrow -1-.
- Lightly press the piston slide valve in direction of arrow -2- and slide in the direction of arrow -3-.
The piston slide valve -A- can only be pushed downwards if the socket housing was pushed downwards »up to the stop«.
- For safety reasons, check the connector for secure catch by tightening it in the opposite direction.



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21 – Turbocharging/supercharging

1 Charge-air system with exhaust gas turbocharger - Part 1

- ⇒ “1.1 Connection diagram for vacuum hoses (Superb II)”, page 292
- ⇒ “1.2 Connection diagram for vacuum hoses (Octavia II)”, page 295
- ⇒ “1.3 Connection diagram for coolant hoses (Fabia II, Roomster)”, page 299
- ⇒ “1.4 Inspect vacuum setting element and tension rods for charge pressure control (Octavia II, Superb II)”, page 302

1.1 Connection diagram for vacuum hoses (Superb II)

- ⇒ “1.1.1 Engine with identification characters BXE”, page 292
- ⇒ “1.1.2 Engine with identification characters BLS”, page 294

1.1.1 Engine with identification characters BXE

Note

- ◆ *Regulations concerning cleanliness when working on the exhaust gas turbocharger*
⇒ “3.4 Regulations concerning cleanliness when working on the exhaust gas turbocharger”, page 6 .
- ◆ *General instructions for charge air system with exhaust gas turbocharger*
⇒ “3.5 General instructions for charge air system with exhaust turbocharger”, page 6 .

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1 - Vacuum reservoir

2 - Mechanical exhaust gas re-circulation valve

3 - To vacuum setting element of charge pressure control

4 - Vacuum setting element for change-over flap of the radiator for exhaust gas recirculation

5 - Valve block

Component parts of the valve block are:

◆ Changeover valve for radiator of exhaust gas recirculation -N345-

◆ Exhaust gas return valve - N18-

◆ Solenoid valve for charge pressure control -N75-

Connection diagram
⇒ Fig. "Connection diagram for valve block", page 293

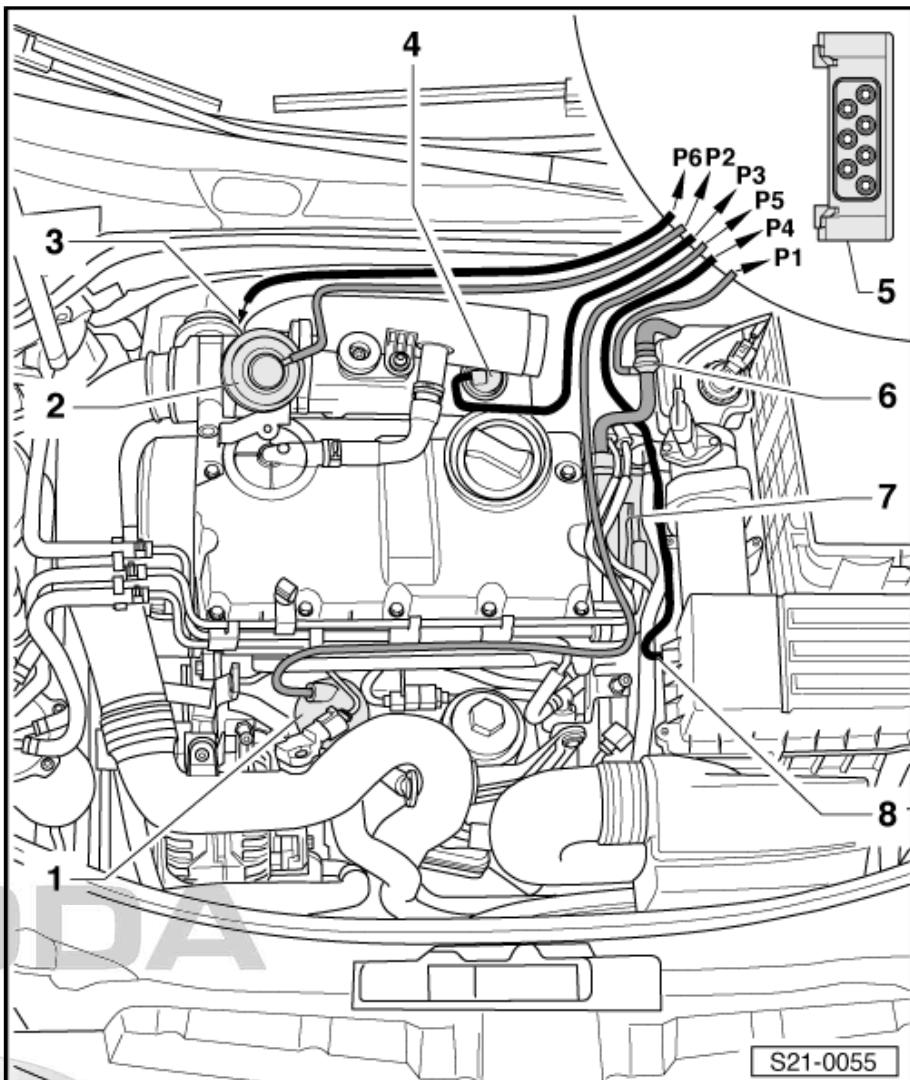
6 - Vacuum line

from the tandem pump to the valve block

7 - Tandem pump

8 - Bleeder hose

to air filter



Connection diagram for valve block

P1 - Vacuum line from the tandem pump

P2 - To mechanical exhaust gas recirculation valve

P3 - To vacuum setting element for change-over flap of the radiator for exhaust gas recirculation

P4 - Ventilation hose to air filter

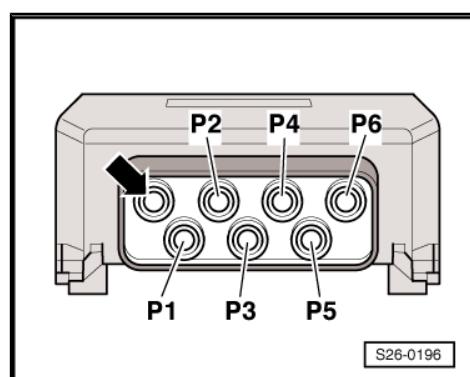
P5 - To vacuum reservoir

P6 - To vacuum setting element of charge pressure control



Note

Protect your health! Configuration component has been designed in such a way that it is not used and it is closed with the cap.
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1.1.2 Engine with identification characters BLS



Note

- ◆ *Regulations concerning cleanliness when working on the exhaust gas turbocharger*
⇒ "3.4 Regulations concerning cleanliness when working on the exhaust gas turbocharger", page 6.
- ◆ *General instructions for charge air system with exhaust gas turbocharger*
⇒ "3.5 General instructions for charge air system with exhaust turbocharger", page 6.

1 - Exhaust gas turbocharger

2 - Charge air cooler

3 - Air intake hose

4 - Non-return valve

5 - Brake servo unit

6 - Solenoid valve for charge pressure control -N75-

7 - Air filter

8 - Changeover valve for radiator of exhaust gas recirculation -N345-

9 - Tandem pump

10 - Cylinder head

11 - Intake manifold

12 - Vacuum reservoir

13 - Exhaust pipe

14 - Vacuum setting element

- for recirculation flap
- always replace together with radiator for exhaust gas recirculation

15 - Exhaust gas recirculation valve -N18- with EGR potentiometer -G212- and EGR control motor -V338-

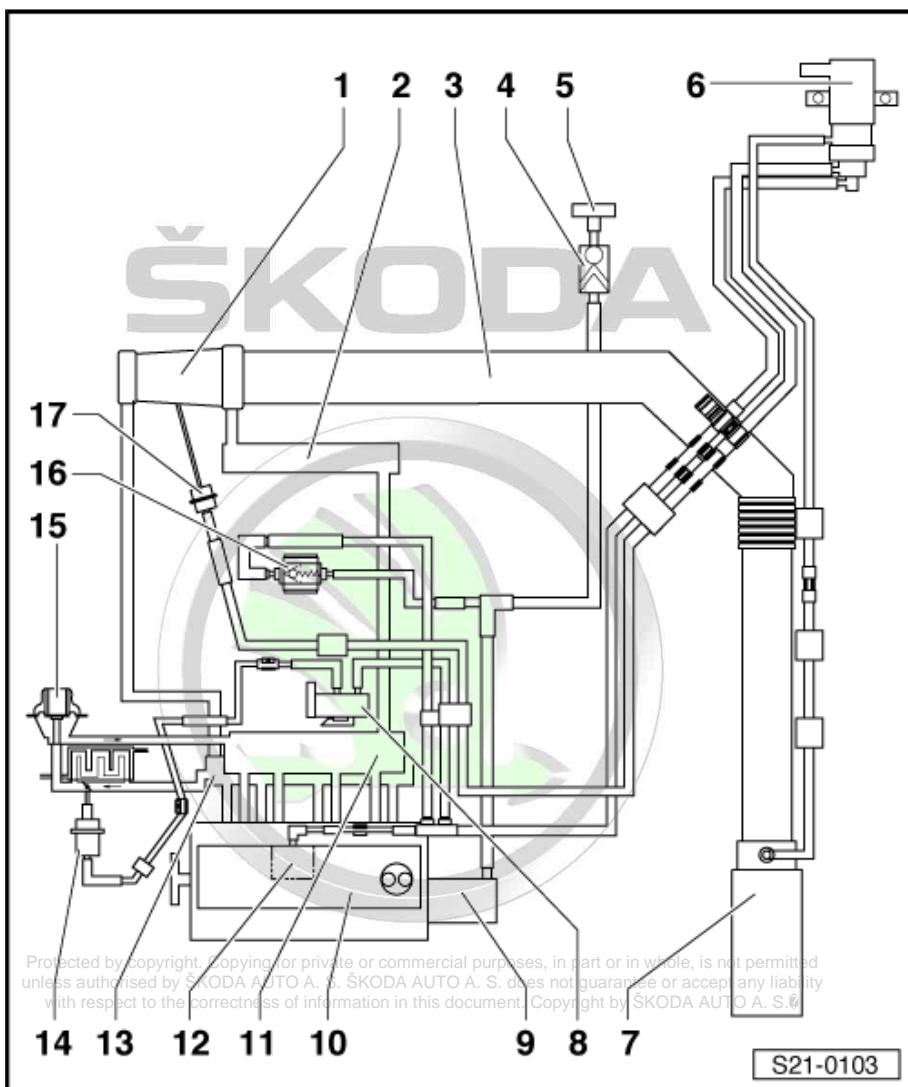
16 - Non-return valve

- white connection to solenoid valve for charge pressure limitation Pos. 6

⇒ "1.1.2 Engine with identification characters BLS", page 294 and to vacuum reservoir

17 - Vacuum setting element

- for charge pressure control
- Components of the exhaust gas turbocharger cannot be replaced individually





1.2 Connection diagram for vacuum hoses (Octavia II)

⇒ "1.2.1 Engine with identification characters BJB", page 295

⇒ "1.2.2 Engine with identification characters BKC, BXE",
page 296

⇒ "1.2.3 Connection diagram for vacuum hoses for engine with
identification characters BLS", page 298

1.2.1 Engine with identification characters BJB

Note

- ◆ *Regulations concerning cleanliness when working on the exhaust gas turbocharger*
⇒ "3.4 Regulations concerning cleanliness when working on the exhaust gas turbocharger", page 6.
- ◆ *General instructions for charge air system with exhaust gas turbocharger*
⇒ "3.5 General instructions for charge air system with exhaust turbocharger", page 6.

1 - Vacuum reservoir

2 - Mechanical exhaust gas re-circulation valve

3 - To vacuum setting element
of charge pressure control

4 - To vacuum setting element
of intake manifold flap

5 - Valve block

□ Component parts of the valve block are:

◆ Changeover valve for intake manifold flap -N239-

◆ Exhaust gas return valve - N18-

◆ Solenoid valve for charge pressure control -N75-

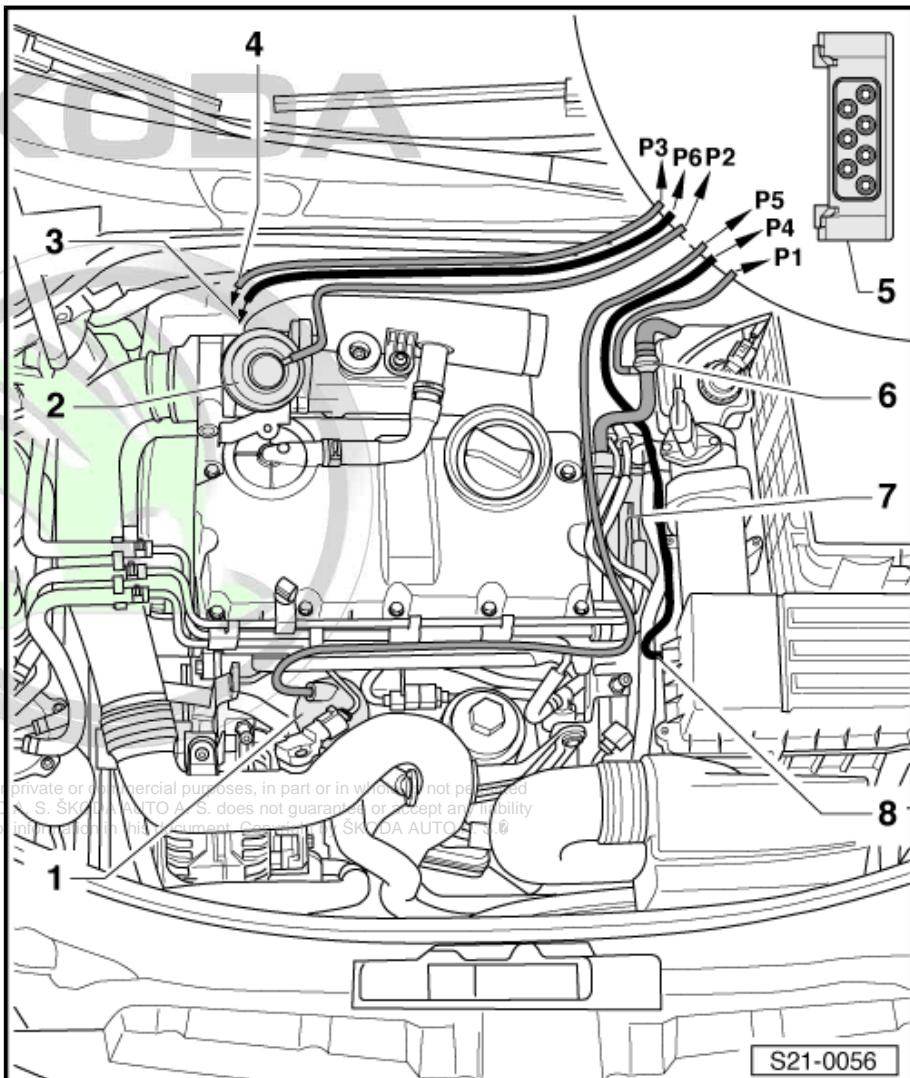
□ Connection diagram

⇒ Fig. "Connection diagram for valve block",
page 296

6 - Vacuum line

□ from the tandem pump
to the valve block

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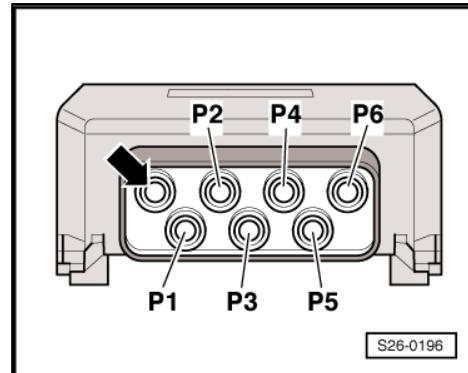
7 - Tandem pump

8 - Bleeder hose

to air filter

Connection diagram for valve block

- P1 - Vacuum line from the tandem pump
- P2 - To mechanical exhaust gas recirculation valve
- P3 - To vacuum setting element of intake manifold flap
- P4 - Ventilation hose to air filter
- P5 - To vacuum reservoir
- P6 - To vacuum setting element of charge pressure control



Note

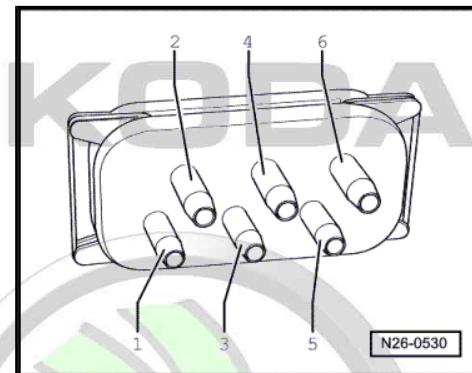
The vacuum connection marked with -arrow- is not used and it is closed with the cap.

Connection diagram for vacuum sockets

Note

The side for the hose connection is shown in the fig.

- 1 - Vacuum line from the tandem pump
- 2 - To mechanical exhaust gas recirculation valve
- 3 - To vacuum setting element of radiator for exhaust gas recirculation
- 4 - Ventilation hose to air filter
- 5 - To vacuum reservoir
- 6 - To vacuum setting element of charge pressure control



1.2.2 Engine with identification characters BKC, BXE

Note

- ◆ *Regulations concerning cleanliness when working on the exhaust gas turbocharger*
⇒ "3.4 Regulations concerning cleanliness when working on the exhaust gas turbocharger", page 6 .
- ◆ *General instructions for charge air system with exhaust gas turbocharger*
⇒ "3.5 General instructions for charge air system with exhaust gas turbocharger", page 6 .

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1 - Vacuum reservoir

2 - Mechanical exhaust gas re-circulation valve

3 - To vacuum setting element of charge pressure control

4 - Vacuum setting element for change-over flap of the radiator for exhaust gas recirculation

5 - Valve block

Component parts of the valve block are:

◆ Changeover valve for radiator of exhaust gas recirculation -N345-

◆ Exhaust gas return valve - N18-

◆ Solenoid valve for charge pressure control -N75-

Connection diagram
[⇒ Fig. "Connection diagram for valve block"](#), page 297

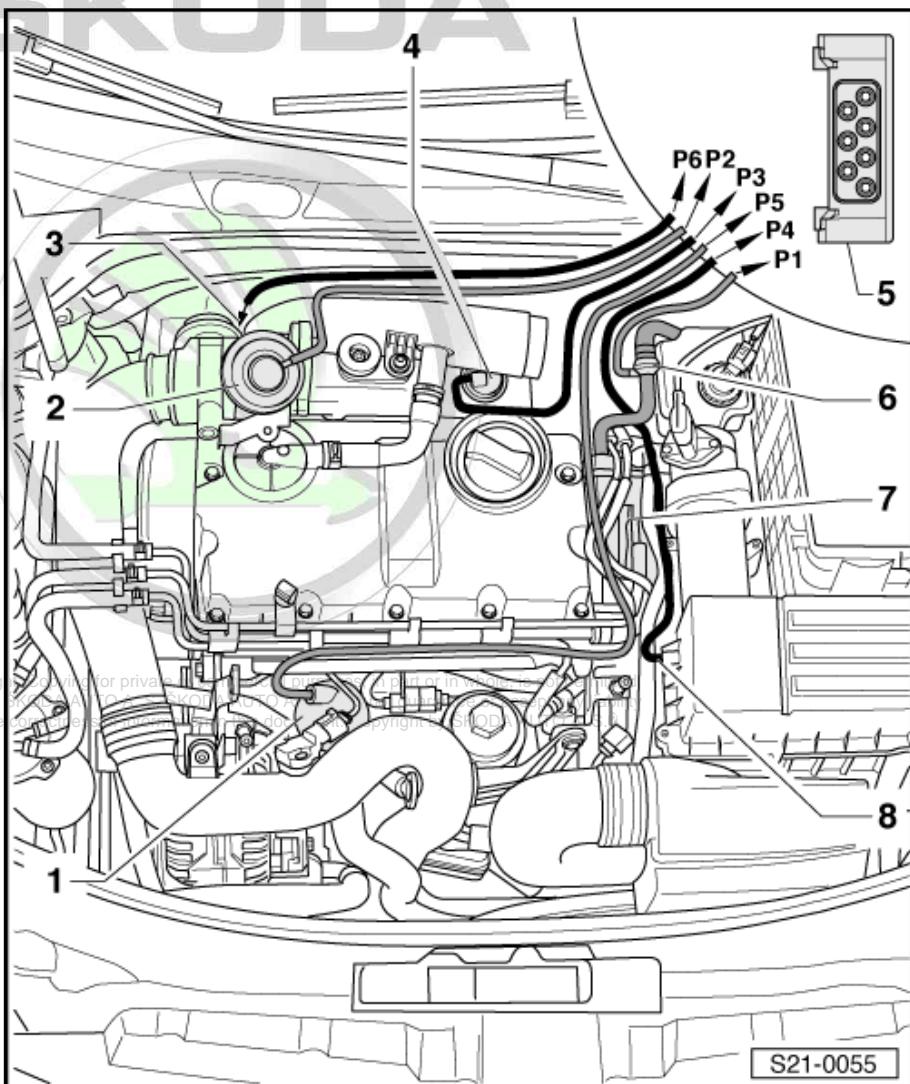
6 - Vacuum line

from the tandem pump to the valve block

7 - Tandem pump

8 - Bleeder hose

to air filter



Connection diagram for valve block

P1 - Vacuum line from the tandem pump

P2 - To mechanical exhaust gas recirculation valve

P3 - To vacuum setting element for change-over flap of the radiator for exhaust gas recirculation

P4 - Ventilation hose to air filter

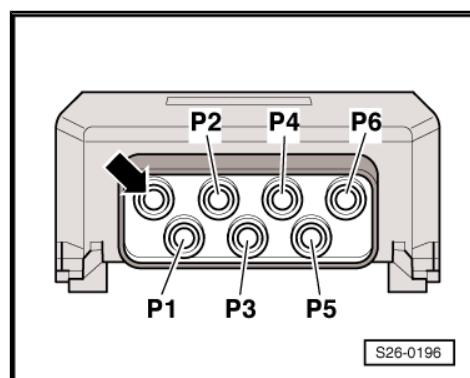
P5 - To vacuum reservoir

P6 - To vacuum setting element of charge pressure control



Note

The vacuum connection marked with -arrow- is not used and it is closed with the cap.





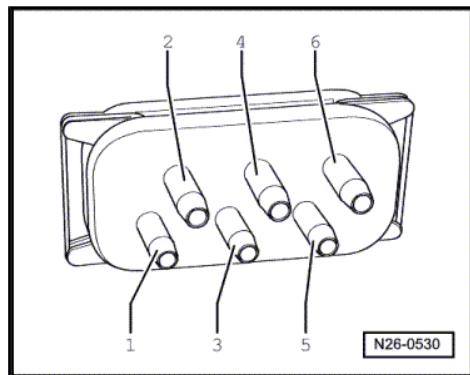
Connection diagram for vacuum sockets



Note

The side for the hose connection is shown in the fig.

- 1 - Vacuum line from the tandem pump
- 2 - To mechanical exhaust gas recirculation valve
- 3 - To vacuum setting element of radiator for exhaust gas recirculation
- 4 - Ventilation hose to air filter
- 5 - To vacuum reservoir
- 6 - To vacuum setting element of charge pressure control



1.2.3 Connection diagram for vacuum hoses for engine with identification characters BLS



Note

- ◆ *Regulations concerning cleanliness when working on the exhaust gas turbocharger*
⇒ "3.4 Regulations concerning cleanliness when working on the exhaust gas turbocharger", page 6.
- ◆ *General instructions for charge air system with exhaust gas turbocharger*
⇒ "3.5 General instructions for charge air system with exhaust turbocharger", page 6.

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1 - Exhaust gas turbocharger

2 - Charge air cooler

3 - Air intake hose

4 - Non-return valve

5 - Brake servo unit

6 - Solenoid valve for charge pressure control -N75-

7 - Air filter

8 - Changeover valve for radiator of exhaust gas recirculation -N345-

9 - Tandem pump

10 - Cylinder head

11 - Intake manifold

12 - Vacuum reservoir

13 - Exhaust pipe

14 - Vacuum setting element

- for recirculation flap
- always replace together with radiator for exhaust gas recirculation

15 - Exhaust gas recirculation valve -N18- with EGR potentiometer -G212- and EGR control motor -V338-

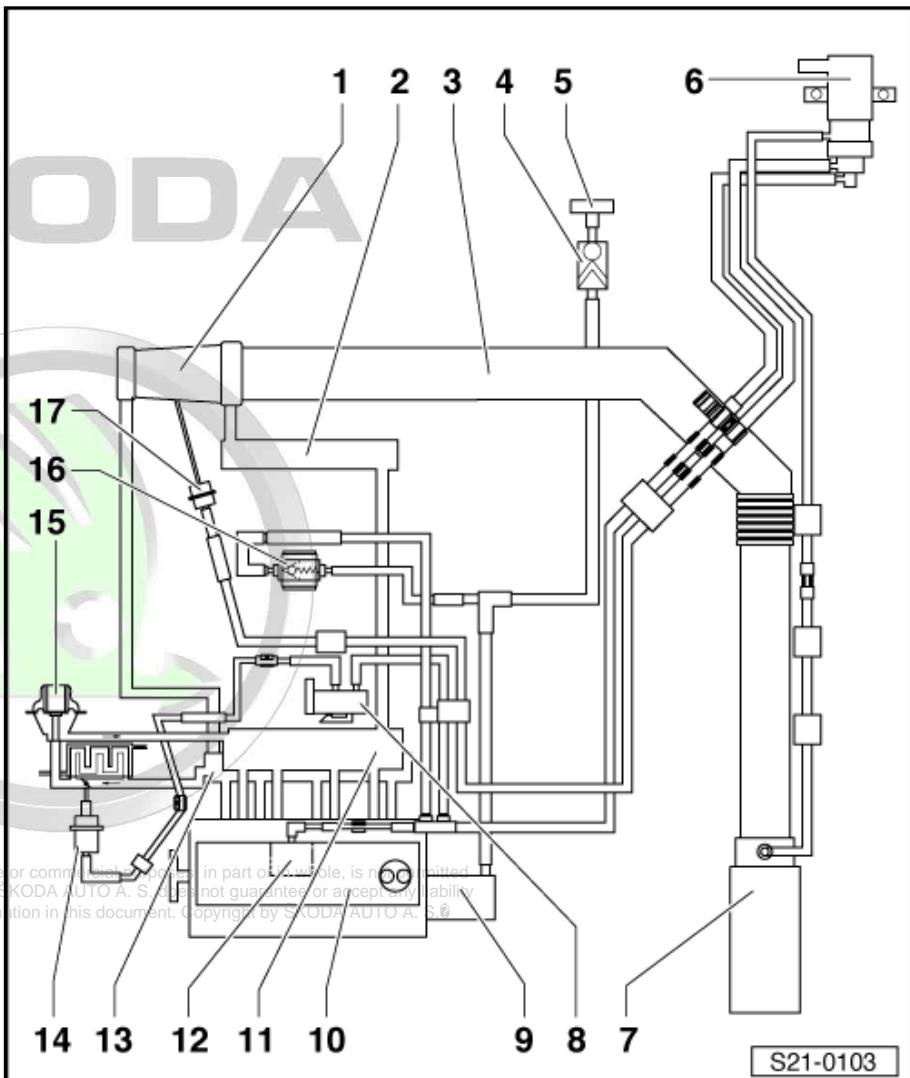
16 - Non-return valve

- white connection to solenoid valve for charge pressure limitation Pos. -6-

⇒ [“1.2.3 Connection diagram for vacuum hoses for engine with identification characters BLS”, page 298](#) and to vacuum reservoir

17 - Vacuum setting element

- for charge pressure control



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1.3 Connection diagram for coolant hoses (Fabia II, Roomster)

⇒ [“1.3.1 Engine with identification characters AXR, BSW”, page 300](#)

⇒ [“1.3.2 Engine with identification characters BLS”, page 301](#)



1.3.1 Engine with identification characters AXR, BSW

Note

- ◆ *Regulations concerning cleanliness when working on the exhaust gas turbocharger*
⇒ "3.4 Regulations concerning cleanliness when working on the exhaust gas turbocharger", page 6.
- ◆ *General instructions for charge air system with exhaust gas turbocharger*
⇒ "3.5 General instructions for charge air system with exhaust turbocharger", page 6.

1 - Valve block

- Component parts of the valve block are:
- ◆ Exhaust gas return valve - N18-
- ◆ Solenoid valve for charge pressure control - N75-

2 - Connecting strip

- Pay attention to the coding when connecting the vacuum hoses

3 - Connecting part

4 - Vacuum setting element

- for charge pressure control

5 - Vacuum reservoir

6 - to air filter

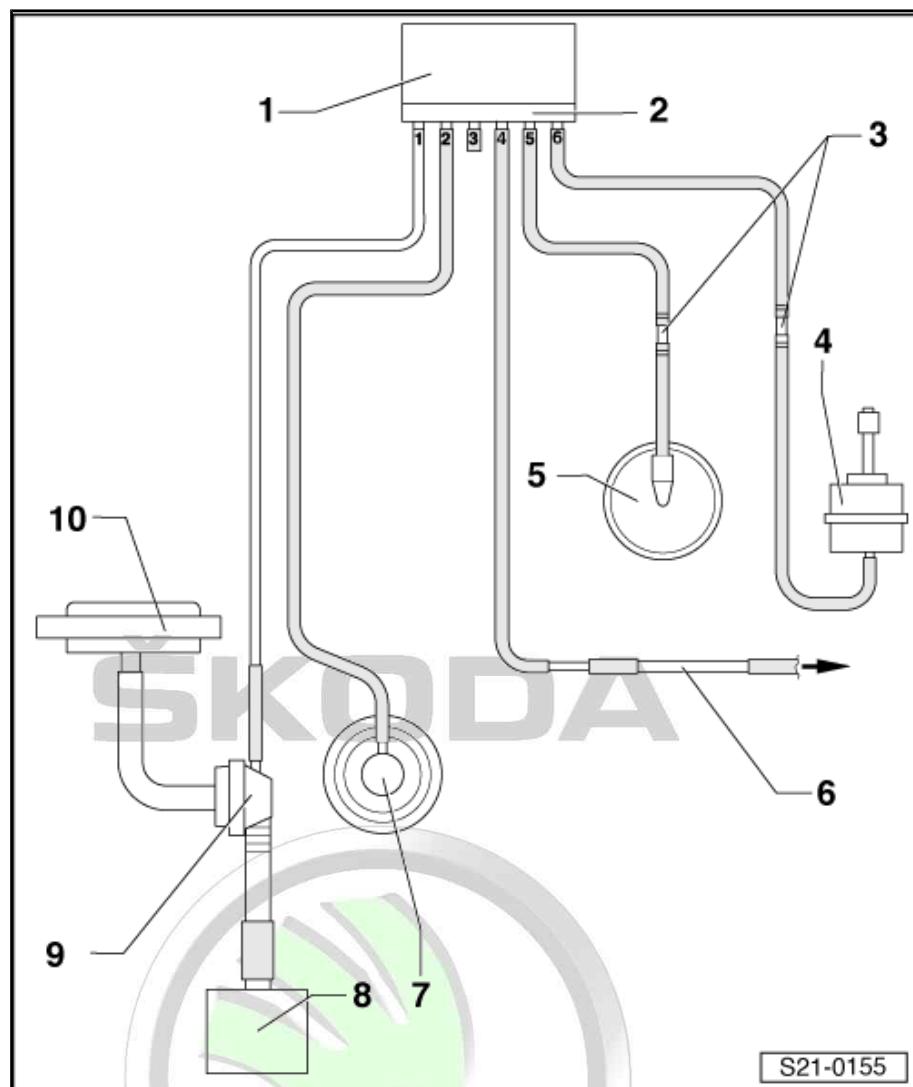
7 - Mechanical exhaust gas recirculation valve

8 - Tandem pump

9 - Distributor part

- With non-return valve for brake servo unit

10 - Brake servo unit



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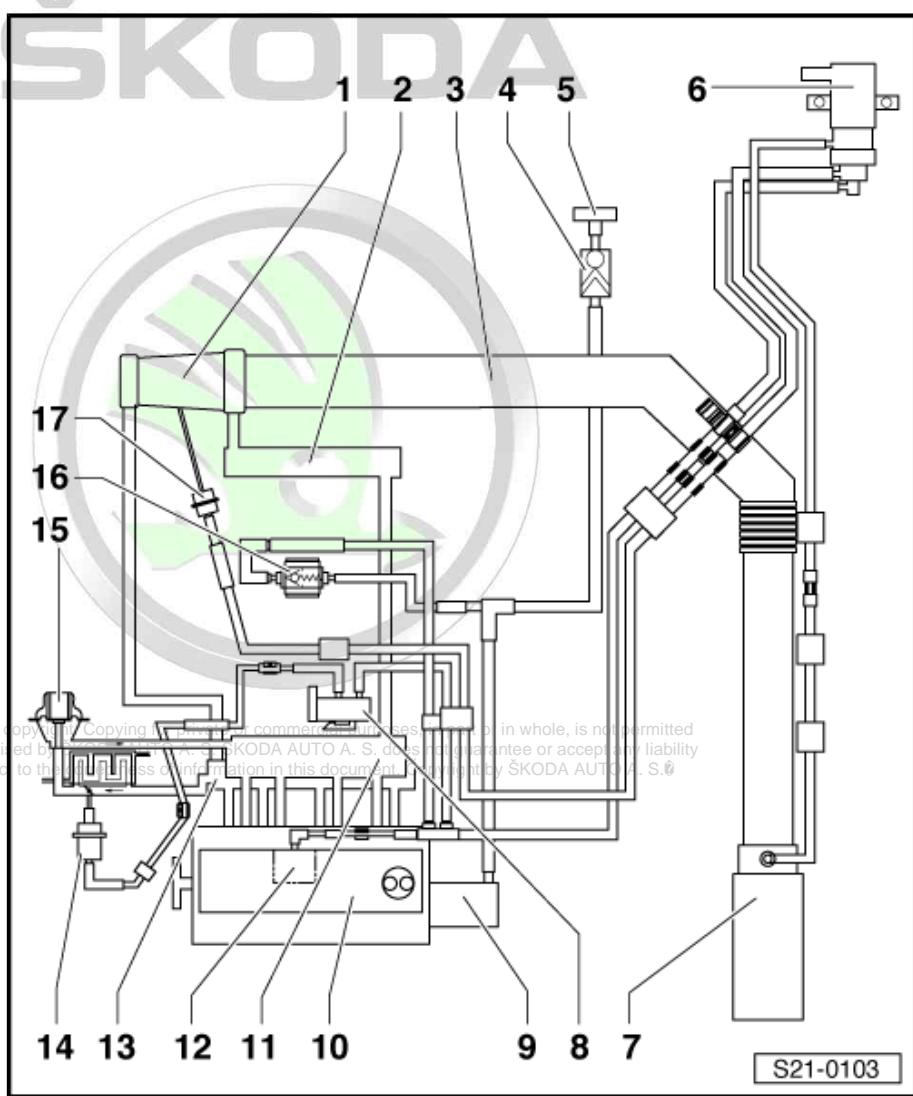
1.3.2 Engine with identification characters BLS



Note

- ◆ *Regulations concerning cleanliness when working on the exhaust gas turbocharger*
⇒ ["3.4 Regulations concerning cleanliness when working on the exhaust gas turbocharger", page 6](#).
- ◆ *General instructions for charge air system with exhaust gas turbocharger*
⇒ ["3.5 General instructions for charge air system with exhaust turbocharger", page 6](#).

- 1 - Exhaust gas turbocharger
 2 - Charge air cooler
 3 - Air intake hose
 4 - Non-return valve
 5 - Brake servo unit
 6 - Solenoid valve for charge pressure control -N75-
 7 - Air filter
 8 - Changeover valve for radiator of exhaust gas recirculation -N345-
 9 - Tandem pump
 10 - Cylinder head
 11 - Intake manifold
 12 - Vacuum reservoir
 13 - Exhaust pipe
 14 - Vacuum setting element
 - for recirculation flap
 15 - Exhaust gas recirculation valve -N18- with EGR potentiometer -G212- and EGR control motor -V338-
 16 - Non-return valve
 - white connection to solenoid valve for charge pressure limitation Pos. 6
⇒ ["1.3.2 Engine with identification characters BLS", page 301](#) and to vacuum reservoir
 17 - Vacuum setting element
 - for charge pressure control



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1.4 Inspect vacuum setting element and tension rods for charge pressure control (Octavia II, Superb II)

Note

- ◆ *Regulations concerning cleanliness when working on the exhaust gas turbocharger*
⇒ "3.4 Regulations concerning cleanliness when working on the exhaust gas turbocharger", page 6.
- ◆ *General instructions for charge air system with exhaust gas turbocharger*
⇒ "3.5 General instructions for charge air system with exhaust turbocharger", page 6.

Special tools and workshop equipment required

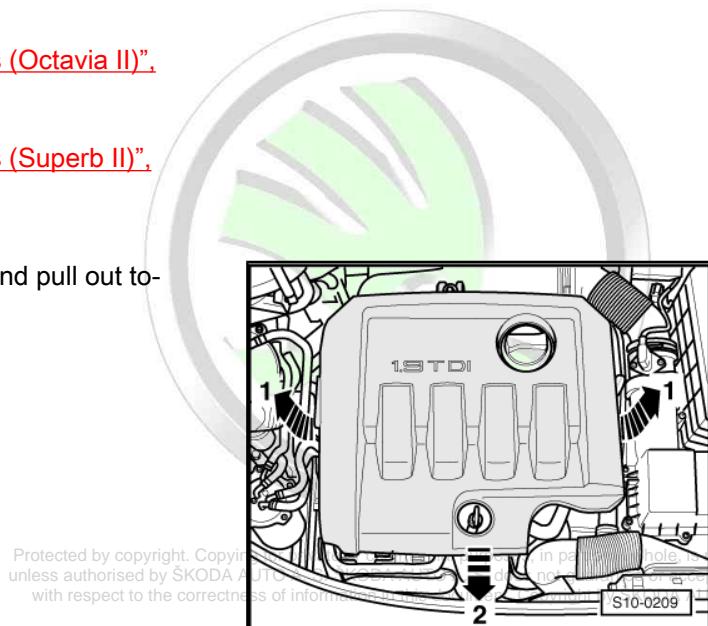
- ◆ Hand vacuum pump with accessories e.g. -V.A.G 1390- or Hand vacuum pump , e.g. -VAS 6213-
- ◆ Turbocharger tester , e.g. -V.A.G 1397 A-

Faults at tension rods or at vacuum setting element of charge pressure control lead to the following faults:

- ◆ Specified values for charge pressure are not reached.
- ◆ Poor performance.
- ◆ Irregular performance in the partial load region.
- ◆ Engine jerk in change-over.
- Check vacuum piping for tightness and completeness:
- ◆ Octavia II
⇒ "1.2 Connection diagram for vacuum hoses (Octavia II)", page 295 .
- ◆ Superb II
⇒ "1.1 Connection diagram for vacuum hoses (Superb II)", page 292 .

Test sequence

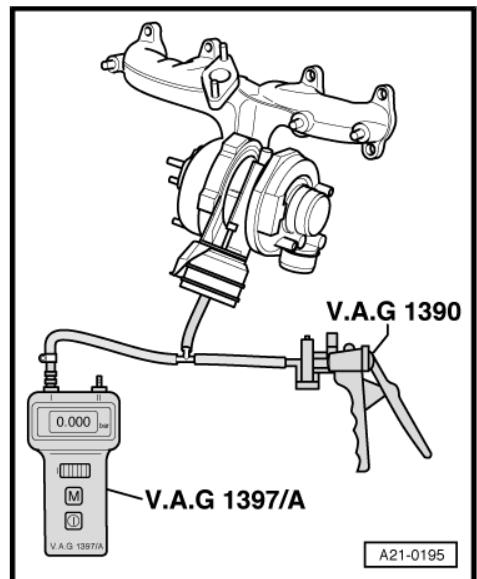
- Lift the engine cover at the sides -arrows 1- and pull out towards the front -arrow 2-.



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- Connect hand vacuum pump and turbocharger tester with auxiliary hoses as shown. Fit test hose onto the connection fitting -I- and put the band switch of the unit into the position -I- (absolute pressure).
- Generate vacuum with the hand vacuum pump.



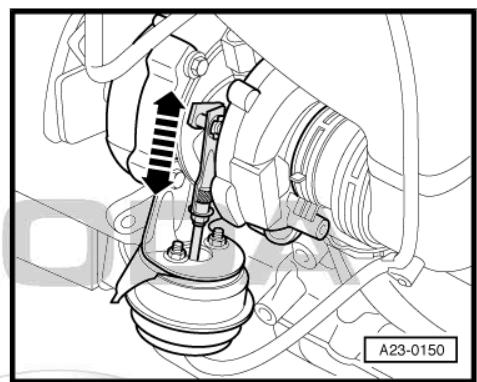
- Read off vacuum value at turbocharger tester - V.A.G 1397 A- and at the same time observe tension rod of exhaust turbocharger:



Note

For the inspection use a mirror.

- Specified value: 50...120 mbar (0.005...0.012 MPa): The tension rod must move up.
- Specified value: 550...620 mbar (0.055...0.062 MPa): The tension rod must rest against the stop at top.



Note

The absolute pressure indicated on the turbocharger tester - V.A.G 1397 A- must decrease to the stated specified values.

- Ventilate hand vacuum pump.
- The tension rod must move down.



Note

*Check the tension rod movement over the entire adjustment area:
 The tension rod must move freely.*

If the specified values are not achieved or the tension rod moves in jolts:

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- Replace exhaust turbocharger
[⇒ “2.3 Removing and installing exhaust gas turbocharger \(Octavia II, Superb II\)”, page 313 .](#)



2 Charge-air system with exhaust gas turbocharger - Part 2

- ⇒ “2.1 Summary of components - exhaust gas turbocharger (Octavia II, Superb II)”, page 304
- ⇒ “2.2 Summary of components - exhaust gas turbocharger (Fabia II, Roomster)”, page 309
- ⇒ “2.3 Removing and installing exhaust gas turbocharger (Octavia II, Superb II)”, page 313
- ⇒ “2.4 Removing and installing exhaust gas turbocharger (Fabia II, Roomster)”, page 318
- ⇒ “2.5 Removing and installing parts of the charge air cooler (Superb II)”, page 324
- ⇒ “2.6 Removing and installing parts of the charge air cooler (Octavia II)”, page 326
- ⇒ “2.7 Removing and installing parts of the charge air cooler (Fabia II, Roomster)”, page 328
- ⇒ “2.8 Removing and installing charge air cooler (Superb II)”, page 330
- ⇒ “2.9 Removing and installing charge air cooler (Octavia II)”, page 332
- ⇒ “2.10 Removing and installing charge air cooler (Fabia II, Roomster)”, page 333
- ⇒ “2.11 Hose connections”, page 334
- ⇒ “2.12 Checking the charge-air system for leaktightness”, page 335
- ⇒ “2.13 Replacing and adjusting the vacuum setting element for exhaust gas turbocharger on engines with identification characters BLS (Octavia II, Superb II)”, page 337
- ⇒ “2.14 Replacing and adjusting the vacuum setting element for exhaust gas turbocharger on engines with identification characters BJB (Octavia II)”, page 342

2.1 Summary of components - exhaust gas turbocharger (Octavia II, Superb II)

- ⇒ “2.1.1 Summary of components for engine with identification characters BKC, BXE”, page 304
- ⇒ “2.1.2 Summary of components for engine with identification characters BLS”, page 306
- ⇒ “2.1.3 Summary of components for engine with identification characters BJB”, page 308

2.1.1 Summary of components for engine with identification characters BKC, BXE

**1 - Gasket**

- Replace after disassembly

2 - to changeover valve of radiator for exhaust gas recirculation**3 - Nut**

- Replace after disassembly
- Coat thread with hot bolt paste -G 052 112 A3-
- 25 Nm

4 - Connecting pipe

- for exhaust gas recirculation
- Pay attention to the part number

5 - Support

- for oil feed line

6 - Screw

- 10 Nm

7 - Oil feed line

- Check oil feed line for continuity before installing.
- Fill the exhaust turbocharger with engine oil through the connection fitting of the oil feed line before installing

8 - Union nut

- 22 Nm

9 - Connection fittings

- 30 Nm

10 - Sealing ring

- Replace after disassembly

11 - Gasket

- Replace after disassembly
- Check fitting position

12 - Exhaust gas turbocharger

- can only be replaced complete with exhaust manifold and vacuum setting element of charge pressure control
- removing and installing [“2.3.1 Engine with identification characters BJB, BKC, BXE”, page 313](#)

13 - Countersupport

- between turbocharger and the cylinder block

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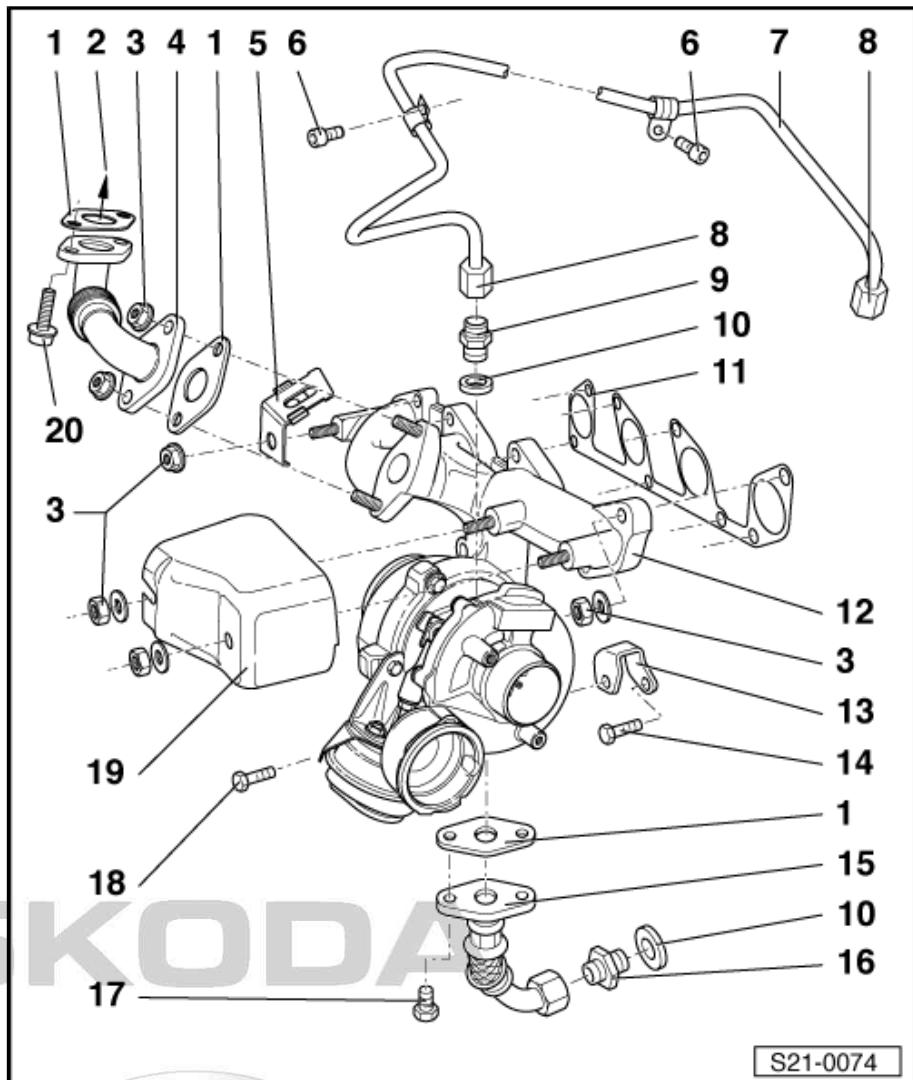
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14 - Screw

- tighten all bolts first of all by hand
- 40 Nm

15 - Oil return-flow line

- in the cylinder block
- Tighten union nut to 30 Nm



S21-0074



16 - Connection fittings

- 40 Nm

17 - Screw

- 17 Nm

18 - Screw

- tighten all bolts first of all by hand
- 20 Nm

19 - Heat shield

20 - Screw

- 22 Nm

2.1.2 Summary of components for engine with identification characters BLS

1 - Screw

- 10 Nm

2 - Support

3 - Heat shield

4 - Oil feed line

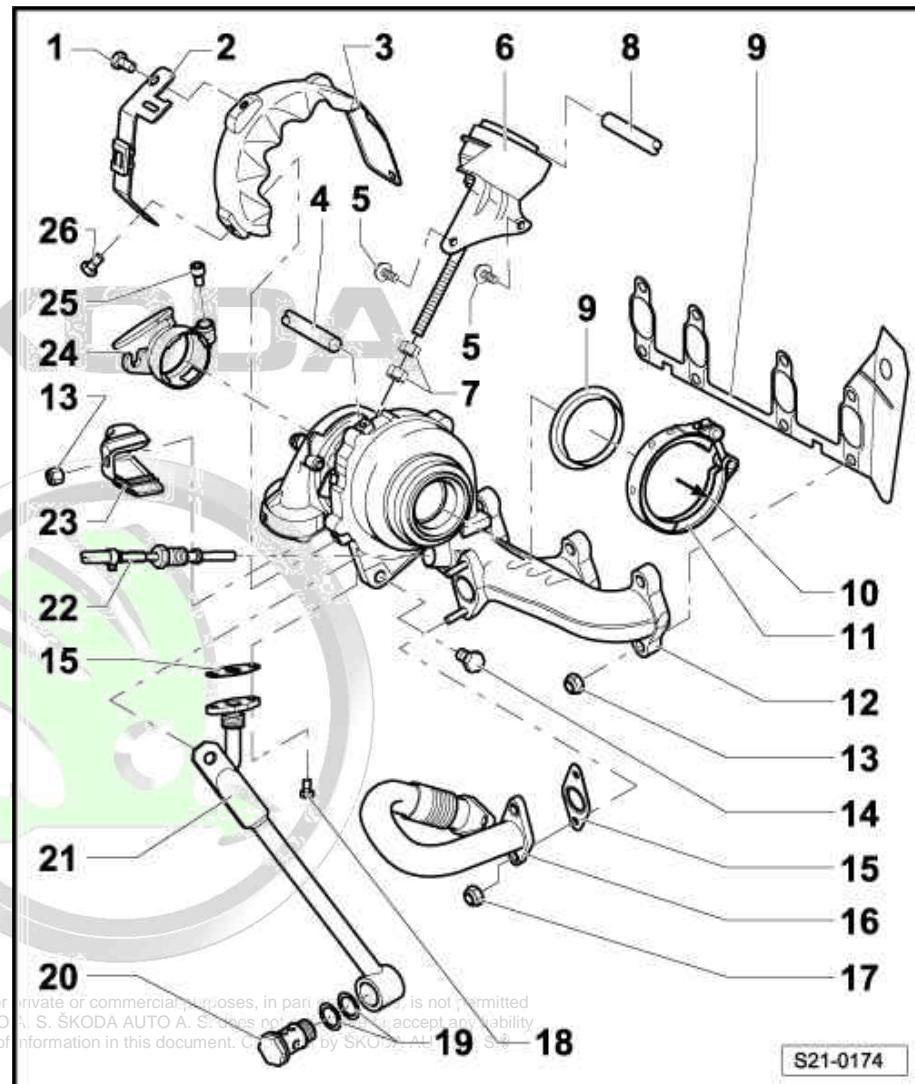
- to connection fitting of oil feed line for exhaust turbocharger
- Check oil feed line for continuity before installing.
- Fill the exhaust turbocharger with engine oil through the connection fitting of the oil feed line before installing

5 - Screw

- 8 Nm

6 - Vacuum setting element

- for charge pressure control
- checking
[⇒ "1.4 Inspect vacuum setting element and tension rods for charge pressure control \(Octavia II, Superb II\)", page 302.](#)
- replacing and adjusting
[⇒ "2.13 Replacing and adjusting the vacuum setting element for exhaust gas turbocharger on engines with identification characters BLS \(Octavia II, Superb II\)", page 337](#)



S21-0174

7 - Nut

- 8 Nm



8 - Vacuum hose

9 - Gasket

- Replace after disassembly
- Check fitting position

10 - for diesel particle filter

11 - Clamp

- Replace after disassembly
- for exhaust gas turbocharger and diesel particle filter
- 7 Nm

12 - Exhaust gas turbocharger

- removing and installing ➔ “2.3.2 Engine with identification characters BLS”, page 315

13 - Nut

- Replace after disassembly
- 25 Nm

14 - Screw

- 25 Nm

15 - Gasket

- Replace after disassembly

16 - Connecting pipe

- for exhaust gas recirculation

17 - Nut

- Replace after disassembly
- 25 Nm

18 - Screw

- 15 Nm

19 - O-ring

- Replace after disassembly

20 - Hollow screw

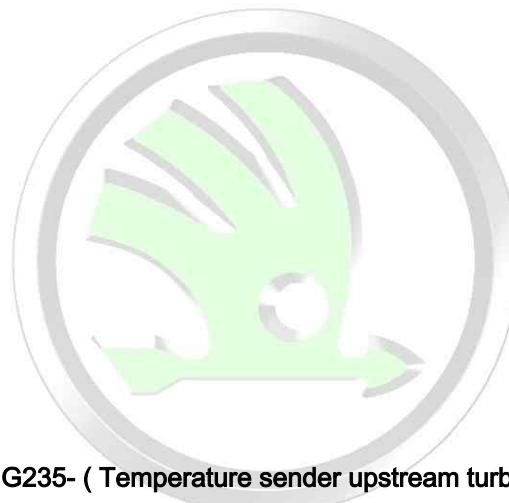
- 60 Nm

21 - Support

- for exhaust gas turbocharger
- for oil return-flow line

22 - Exhaust gas temperature sender 1 - G235- (Temperature sender upstream turbocharger - G507-)

- black plug
- remove and install using the socket insert SW 17 from the set of tools -T10395-
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- the thread of the new temperature sender must be coated with assembly paste
- coat only the thread with hot bolt paste - G 052 112 A3- for re-used temperature sender
- 45 Nm



23 - Heat shield

24 - Connection fittings

- for intake hose between air filter and exhaust turbocharger

25 - Screw

- 9 Nm

26 - Screw

- 10 Nm



2.1.3 Summary of components for engine with identification characters BJB

1 - Nut

- Replace after disassembly
- Coat thread with hot bolt paste -G 052 112 A3-
- 25 Nm

2 - Connecting pipe

- for exhaust gas recirculation
- Pay attention to the part number

3 - Gasket

- Replace after disassembly

4 - Support

- for oil feed line

5 - to mechanical exhaust gas recirculation valve

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6 - Screw

- 10 Nm

7 - Oil feed line

- Check oil feed line for continuity before installing.
- Fill the exhaust turbocharger with engine oil through the connection fitting of the oil feed line before installing

8 - Union nut

- 22 Nm

9 - Connection fittings

- 30 Nm

10 - Sealing ring

- Replace after disassembly

11 - Gasket

- Replace after disassembly
- Check fitting position

12 - Exhaust gas turbocharger

- removing and installing ["2.3.1 Engine with identification characters BJB, BKC, BXE", page 313](#)

13 - Countersupport

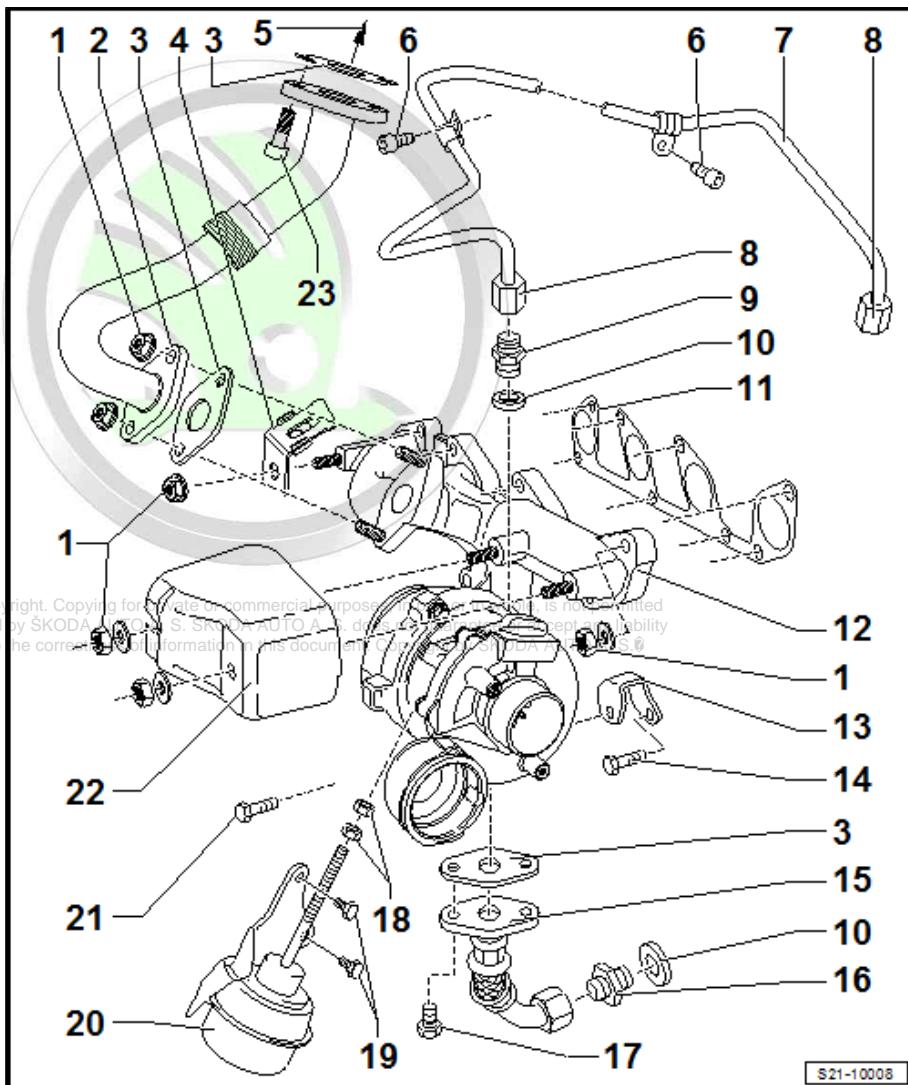
- between turbocharger and the cylinder block

14 - Screw

- tighten all bolts first of all by hand
- 40 Nm

15 - Oil return-flow line

- in the cylinder block
- Tighten union nut to 30 Nm



**16 - Connection fittings**

- 40 Nm

17 - Screw

- 17 Nm

18 - Nut

- 8 Nm

19 - Screw

- 8 Nm

20 - Vacuum setting element

- for charge pressure control
- checking
⇒ [“1.4 Inspect vacuum setting element and tension rods for charge pressure control \(Octavia II, Superb II\)”, page 302](#).
- replacing and adjusting
⇒ [“2.14 Replacing and adjusting the vacuum setting element for exhaust gas turbocharger on engines with identification characters BJB \(Octavia II\)”, page 342](#)

21 - Screw

- tighten all bolts first of all by hand
- 20 Nm

22 - Heat shield

23 - 22 Nm Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by ŠKODA AUTO A. S. ŠKODA AUTO A. S. does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by ŠKODA AUTO A. S.

2.2 Summary of components - exhaust gas turbocharger (Fabia II, Roomster)

⇒ [“2.2.1 Summary of components for engine with identification characters AXR, BSW”, page 310](#)

⇒ [“2.2.2 Summary of components for engine with identification characters BLS”, page 312](#)



2.2.1 Summary of components for engine with identification characters AXR, BSW

1 - Intake manifold

2 - Inlet connection

- with mechanical exhaust gas recirculation valve

3 - Intake manifold flap motor - V157-

4 - From charge air cooler

5 - Gasket

- Replace after disassembly

6 - Screw

- 25 Nm

7 - Gasket

- Check fitting position

8 - Washer

9 - Nut

- Replace after disassembly
- Coat stud bolts with paste -G 052 112 A3-
- 25 Nm

10 - From air filter

11 - Heat shield

12 - To charge air cooler

13 - Support

- for exhaust gas turbocharger

14 - Screw

- 40 Nm

15 - Screw

- 25 Nm

16 - Connection fittings

- 40 Nm

17 - Sealing ring

- Replace after disassembly

18 - Screw

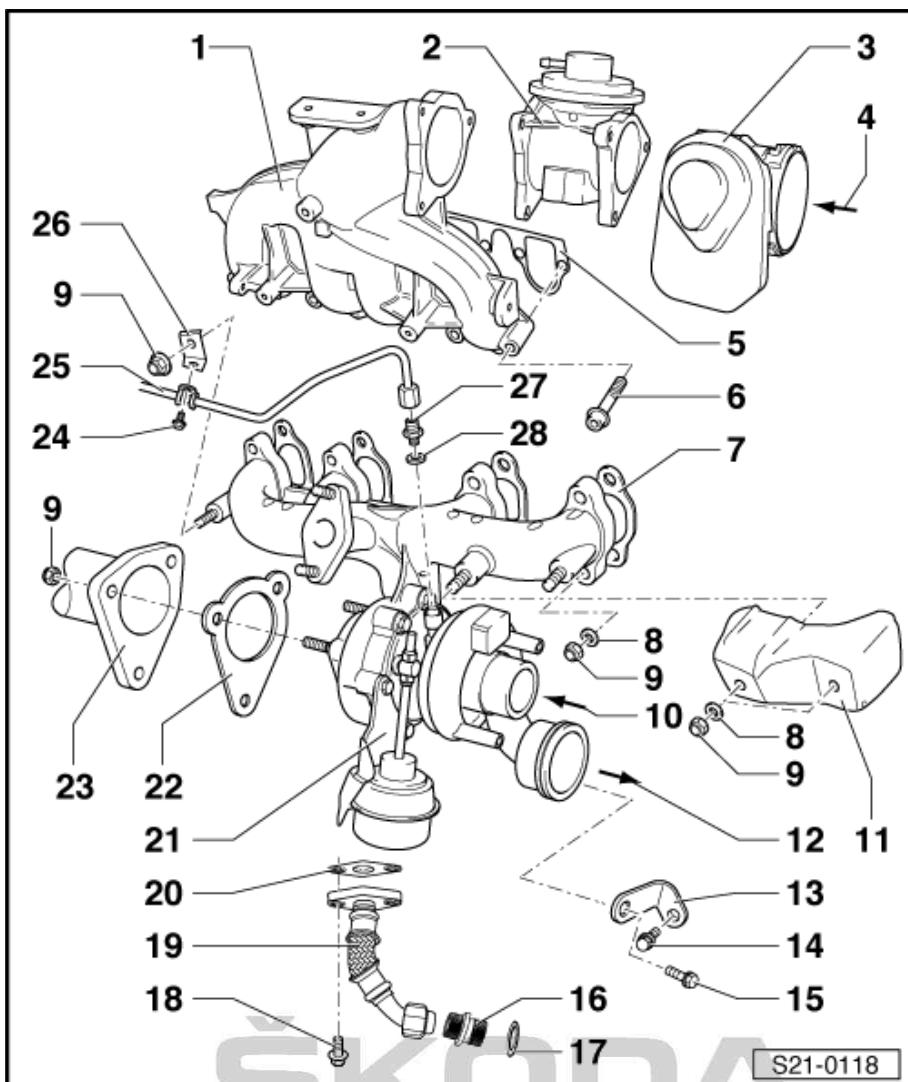
- 17 Nm

19 - Oil return-flow line

- to cylinder block
- Tighten union nut to 35 Nm

20 - Gasket ring for oil return line

- Replace after disassembly





21 - Exhaust gas turbocharger

- Can only be replaced complete with exhaust manifold
- removing and installing ⇒ “2.4.1 Engine with identification characters AXR, BSW”, page 318
- Checking charge pressure control ⇒ Vehicle diagnostic tester
- charge pressure regulating valve and pressure box for charge pressure regulating valve are component parts of the exhaust turbocharger and cannot be replaced individually.
- before connecting the oil feed line, fill the exhaust turbocharger on the connection fitting with engine oil.
- After installing the exhaust turbocharger, run engine at idling speed for about 1 minute to ensure that oil is supplied to the exhaust turbocharger.

22 - Gasket

- Replace after disassembly

23 - Exhaust pipe with catalytic converter

24 - Screw

- 10 Nm

25 - Oil feed line

- Tighten union nut to 22 Nm

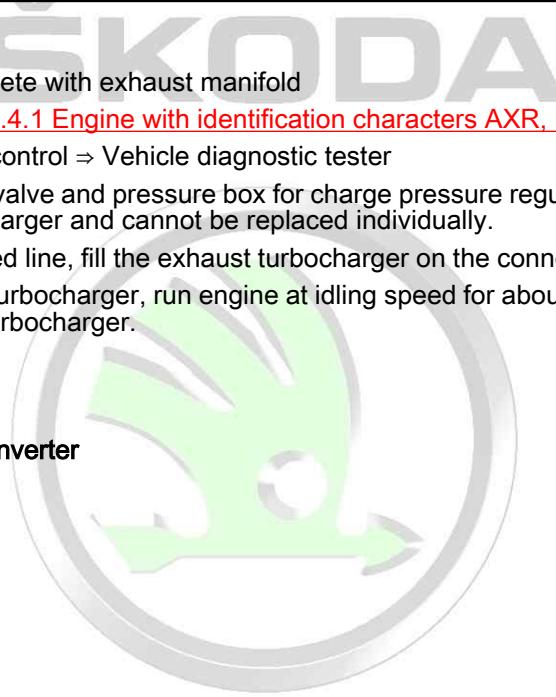
26 - Support

27 - Connection fittings

- 30 Nm

28 - Washer

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2.2.2 Summary of components for engine with identification characters BLS

1 - Screw

- 10 Nm

2 - Support

3 - Heat shield

4 - Oil feed line

- to connection fitting of oil feed line for exhaust turbocharger
- Check oil feed line for continuity before installing.
- Fill the exhaust turbocharger with engine oil through the connection fitting of the oil feed line before installing

5 - Vacuum setting element

- for charge pressure control
- Components of the exhaust gas turbocharger cannot be replaced individually

6 - Vacuum hose

7 - Gasket

- Replace after disassembly
- Check fitting position

8 - for diesel particle filter

9 - Clamp

- Replace after disassembly
- for exhaust gas turbocharger and diesel particle filter
- 7 Nm

10 - Exhaust turbocharger with exhaust manifold

- can only be replaced as one part
- removing and installing ["2.4.2 Engine with identification characters BLS", page 321](#)

11 - Nut

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- Replace after disassembly
- 25 Nm

12 - Screw

13 - Gasket

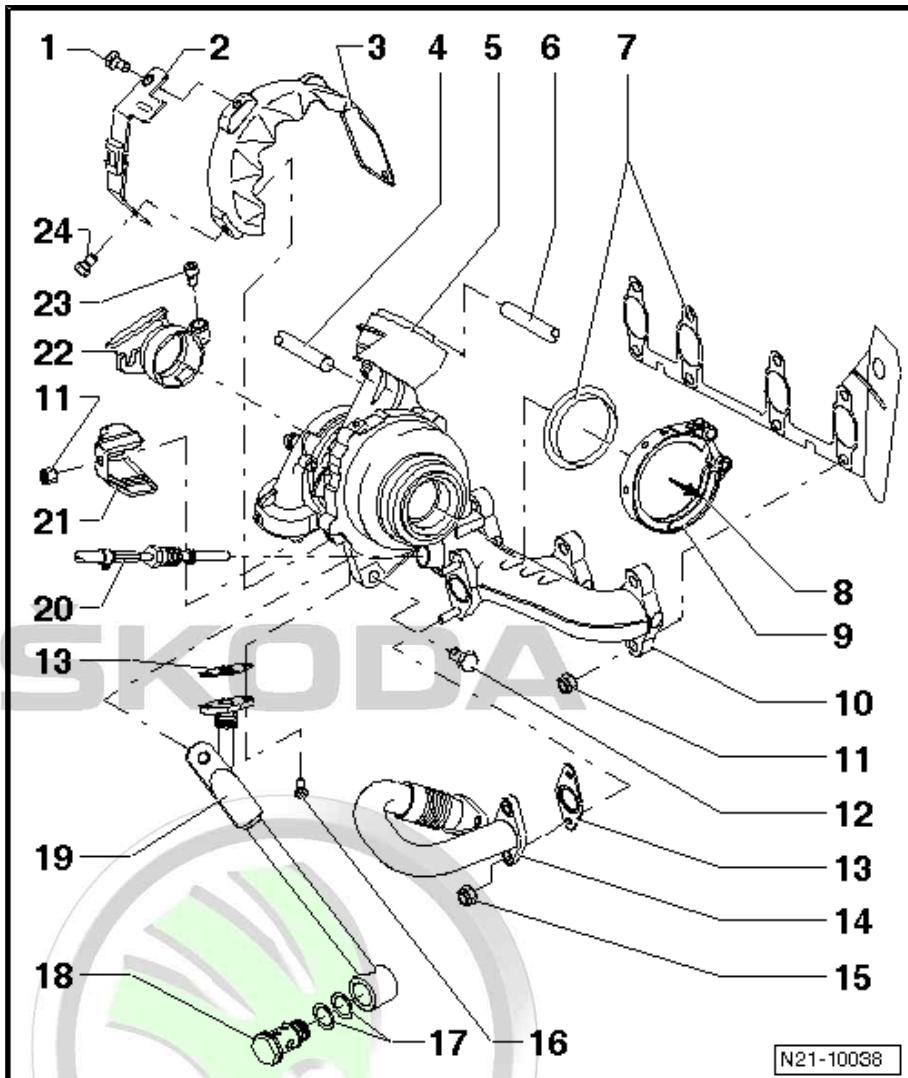
- Replace after disassembly

14 - Connecting pipe

- for exhaust gas recirculation

15 - Nut

- Replace after disassembly
- 25 Nm



N21-10038



16 - Screw

- 15 Nm

17 - O-ring

- Replace after disassembly

18 - Hollow screw

- 60 Nm

19 - Support

- for exhaust gas turbocharger
- for oil return-flow line

20 - Exhaust gas temperature sender 1 - G235- (Temperature sender upstream turbocharger - G507-)

- black plug
- remove and install using the socket insert SW 17 from the set of tools -T10395-
- coat thread with hot bolt paste - G 052 112 A3- before installing
- 45 Nm

21 - Heat shield

22 - Connection fittings

- for intake hose between air filter and exhaust turbocharger

23 - Screw

- 9 Nm

24 - Screw

- 10 Nm

2.3 Removing and installing exhaust gas turbocharger (Octavia II, Superb II)

2.3.1 Engine with identification characters BJB, BKC, BXE

Special tools and workshop equipment required

- ◆ Pliers for spring strap clamps



Caution

In case of mechanical damage to the exhaust gas turbocharger, e.g. damage of the compressor wheel, it is not sufficient to only replace the exhaust gas turbocharger. In order to prevent consequential damage to the engine, perform the following tasks:

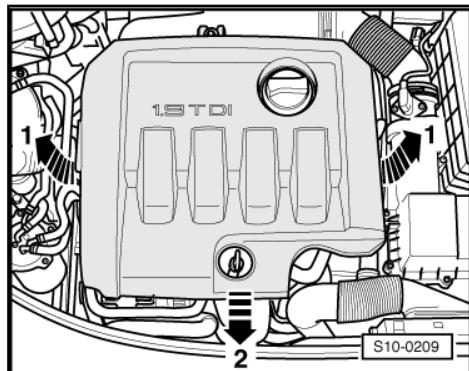
- ◆ *Check air filter, air filter insert and charge air hoses as well as charge air pipes for soiling.*
- ◆ *Check all the air guides and the charge air cooler for foreign bodies.*

If soiling or foreign bodies are detected in the filling system, all air guides must be carefully cleaned and if necessary replace the charge air cooler.



Removing

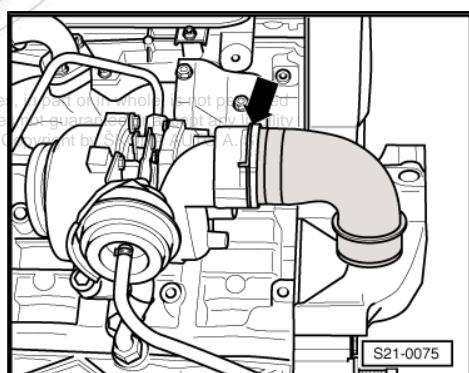
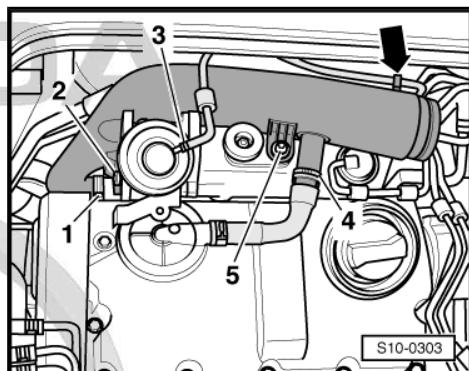
- Lift the engine cover at the sides -arrows 1- and pull out towards the front -arrow 2-.



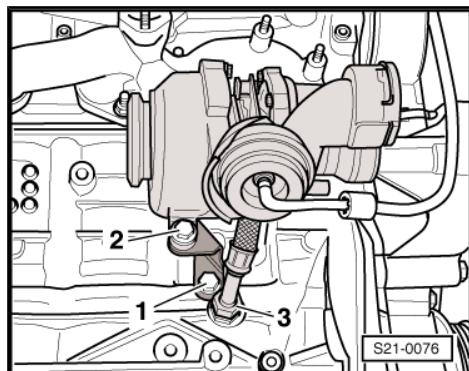
- Disconnect vacuum hose -3- from mechanical exhaust gas recirculation valve and hose to vacuum setting element of charge pressure control. Expose cable harness -arrow-.
- Disconnect pipe to crankcase ventilation -4- at air guide pipe.
- Release spring strap clips -1- at exhaust turbocharger.
- Release screws -2- and -5- and remove air guide pipe.
- Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
- Unscrew drive shaft from the angle gearbox on the right ⇒ Chassis; Rep. gr. 40 .
- Remove pre-exhaust pipe:

 - ◆ Octavia II
[⇒ "1.2 Summary of components - exhaust system \(Octavia II\)"](#)
[page 383](#) .
 - ◆ Superb II
[⇒ "1.1 Summary of components - exhaust system \(Superb II\)"](#)
[page 380](#) .

- Remove air guide hose from exhaust turbocharger, to do so pull retaining clip -arrow-.

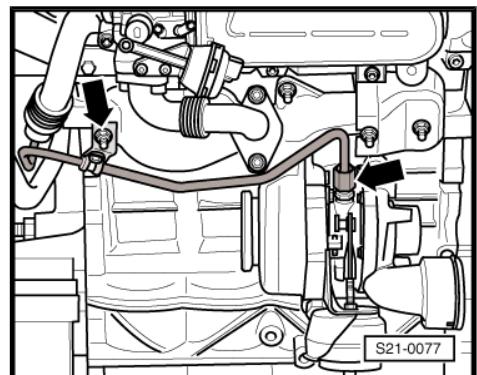


- Release screws -1- and -2- and remove bracket for turbocharger.
- Remove the oil return line -3- at the cylinder block.





- Unscrew oil feed line at exhaust turbocharger and at exhaust manifold -arrows- and lay it to one side.
- Remove connection pipe for exhaust gas recirculation arrows and heat shield for exhaust manifold.



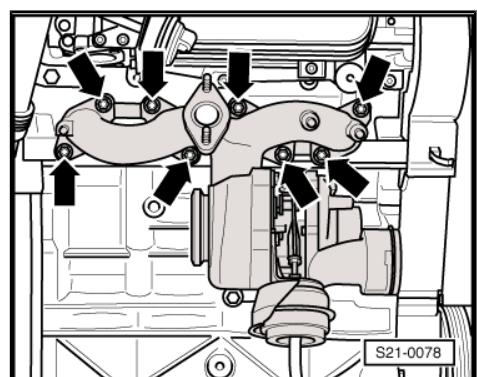
- Unscrew nuts -arrows- and remove exhaust manifold with exhaust turbocharger downwards.

Install

Install in the reverse order of removal. When doing this, note the following:



- ◆ Replace the gaskets, the sealing rings and the self-locking nuts.
- ◆ Fill exhaust turbocharger with engine oil through the connection fitting of the oil feed line.
- ◆ Hose connections and hoses of the charge air system must be free of oil and grease before being installed.
- ◆ Secure all hose connections with corresponding hose clips.
- Install exhaust system and align free of stress: .
 - ◆ Octavia II
⇒ "1.12 Aligning exhaust system free of stress (Octavia II)", page 409 .
 - ◆ Superb II
⇒ "1.11 Fitting exhaust system free of stress (Superb II)", page 408 .
- Observe the assembly instruction for hose connections with push-fit couplings ⇒ "2.11 Hose connections", page 334 .
- Checking the oil level:
 - ◆ ⇒ Maintenance ; Booklet Octavia II .
 - ◆ ⇒ Maintenance ; Booklet Superb II .



after installing the exhaust turbocharger run the engine approx. 1 minute in idle and do not increase speed immediately in order to ensure the supply of oil to the turbocharger.

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2.3.2 Engine with identification characters BLS

Special tools and workshop equipment required

- ◆ Set of tools - T10395-



- ◆ Pliers for spring strap clamps



Caution

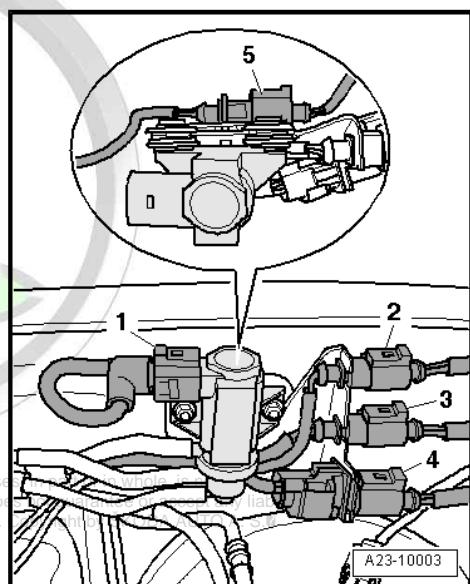
In case of mechanical damage to the exhaust gas turbocharger, e.g. damage of the compressor wheel, it is not sufficient to only replace the exhaust gas turbocharger. In order to prevent consequential damage to the engine, perform the following tasks:

- ◆ *Check air filter, air filter insert and charge air hoses as well as charge air pipes for soiling.*
- ◆ *Check all the air guides and the charge air cooler for foreign bodies.*

If soiling or foreign bodies are detected in the filling system, all air guides must be carefully cleaned and if necessary replace the charge air cooler.

Removing

- Remove pre-exhaust pipe with diesel particle filter
 ⇒ [“1 Removing and installing parts of the exhaust system”, page 380](#) .
- Unplug connector at air mass meter -G70-
 ⇒ [“1.1.3 Summary of components for engine with identification characters BLS”, page 353](#) .
- Remove the connection pipe
 ⇒ [“1.4 Summary of components - air filter \(Octavia II, Superb II\)”, page 364](#) .
- Remove intake hose.
- Remove connection fitting.
- Remove vacuum line to vacuum setting element.
- Detach the oil feed line from the exhaust turbocharger.
- Disconnect black plug -3- for exhaust temperature sender 1 - G235- (temperature sender upstream of turbocharger - G507-) and slacken cable.
- Loosen the screw for right drive shaft ⇒ Chassis; Rep. gr. 40 .
- Unscrew right coupling rod ⇒ Chassis; Rep. gr. 40 .
- Pull the drive shaft out of the wheel hub.
- Remove the air guide hose from the exhaust gas turbocharger:
 - ◆ Octavia II
 ⇒ [“2.6.2 Summary of components for engine with identification characters BLS”, page 328](#) .
 - ◆ Superb II
 ⇒ [“2.5.2 Summary of components for engine with identification characters BLS”, page 326](#) .
- Remove the connection pipe
 ⇒ [“2.1.2 Summary of components for engine with identification characters BLS”, page 414](#) .



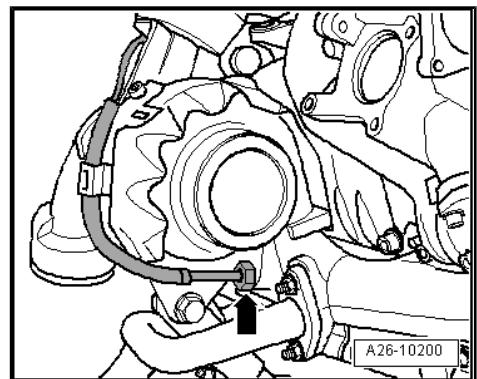


- Remove exhaust gas temperature sender 1 - G235- (temperature sender upstream turbocharger - G507-) -arrow- using socket insert SW 17 from the set of tools - T10395- .

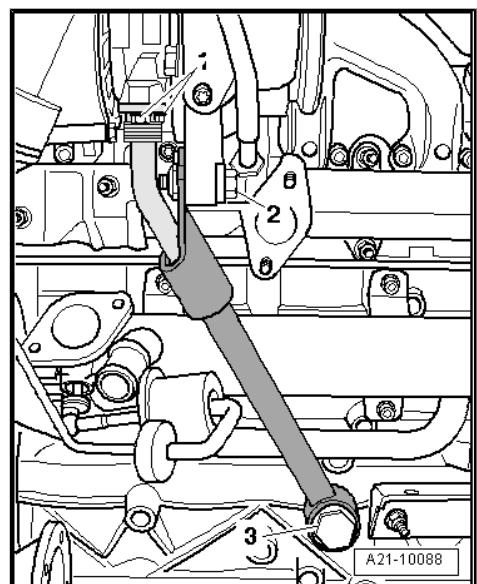
Vehicles with four-wheel drive

- Remove right flange shaft from angle gearbox ⇒ Gearbox; Rep. gr. 39 ⇒ Chapter “Replacing gasket ring for right flange shaft” .

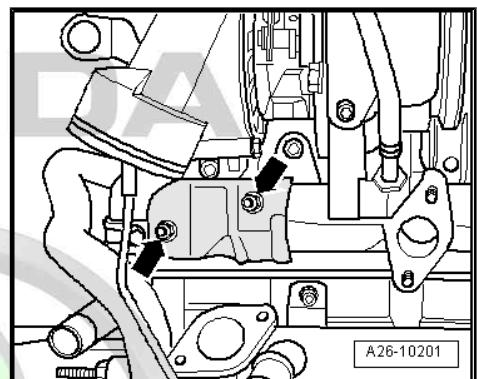
Continued for all vehicles



- Release screws -1-, screw -2- and the hollow screw -3-.



- Remove left heat shield at exhaust manifold -arrows-.
- Unscrew bracket for diesel particle filter from cylinder block.





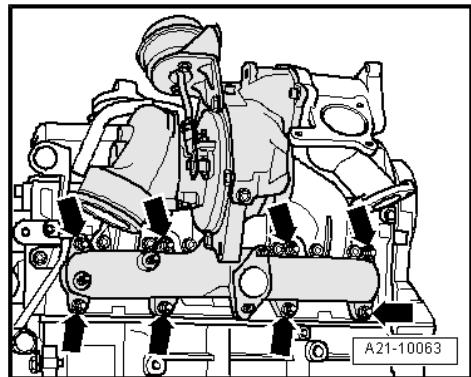
- Unscrew nuts -arrows- and remove exhaust manifold with exhaust turbocharger downwards.

Install

Install in the reverse order of removal. When doing this, note the following:

Note

- ◆ Replace the gaskets, the sealing rings and the self-locking nuts.
- ◆ Fill exhaust turbocharger with engine oil through the connection fitting of the oil feed line.
- ◆ Hose connections and hoses of the charge air system must be free of oil and grease before being installed.
- ◆ Secure all hose connections with corresponding hose clips.



- Observe the assembly instruction for hose connections with push-fit couplings [⇒ “2.11 Hose connections”, page 334](#).

- Checking the oil level:

- ◆ ⇒ Maintenance ; Booklet Octavia II .
- ◆ ⇒ Maintenance ; Booklet Superb II .

Note

after installing the exhaust turbocharger run the engine approx. 1 minute in idle and do not increase speed immediately in order to ensure the supply of oil to the turbocharger.

2.4 Removing and installing exhaust gas turbocharger (Fabia II, Roomster)

[⇒ “2.4.1 Engine with identification characters AXR, BSW”, page 318](#)

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2.4.1 Engine with identification characters AXR, BSW

Special tools and workshop equipment required

- ◆ Pliers for spring strap clamps



Caution

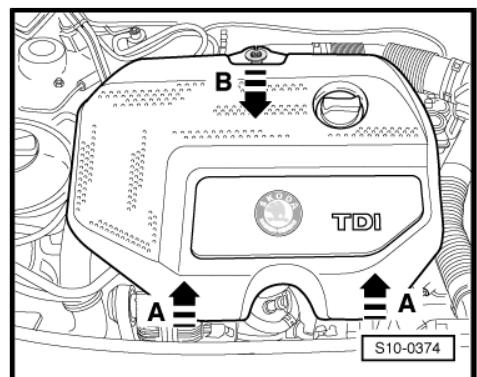
In case of mechanical damage to the exhaust gas turbocharger, e.g. damage of the compressor wheel, it is not sufficient to only replace the exhaust gas turbocharger. In order to prevent consequential damage to the engine, perform the following tasks:

- ◆ Check air filter, air filter insert and charge air hoses as well as charge air pipes for soiling.
- ◆ Check all the air guides and the charge air cooler for foreign bodies.

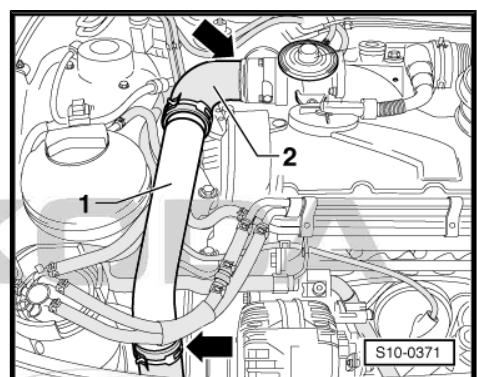
If soiling or foreign bodies are detected in the filling system, all air guides must be carefully cleaned and if necessary replace the charge air cooler.

Removing

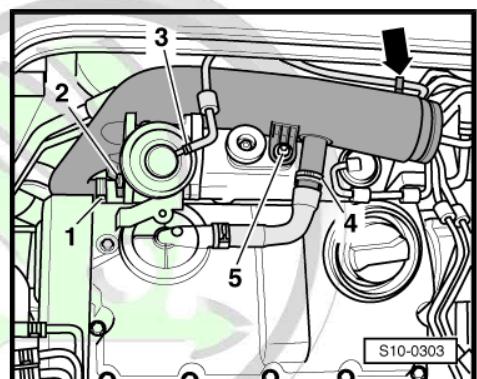
- Lift the engine cover at the sides -arrows A- and pull out towards the front -arrow B-.



- Remove charge-air pipe at the top -1- with connecting hose -2- -arrows-.
- Remove intake manifold flap motor - V157- .
- Remove inlet connection with mechanical exhaust gas recirculation valve .

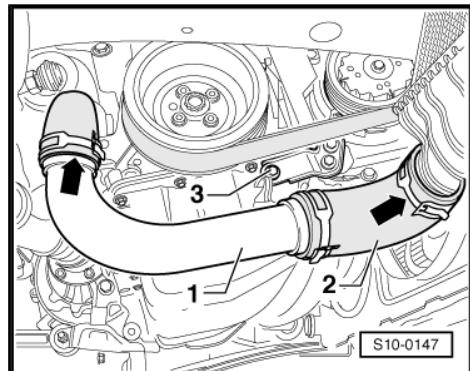


- Disconnect vacuum hose -3- from the mechanical exhaust gas recirculation valve .
- Disconnect pipe to crankcase ventilation -4- at air guide pipe.
- Unscrew screws -2- and -5-.
- Release spring strap clamp -1- at turbocharger and remove air guide pipe.
- Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .





- Remove screw -3- and disconnect connecting hose -2- on the charge-air cooler -right arrow-.
- Unscrew the propeller-shaft guard from the cylinder block.

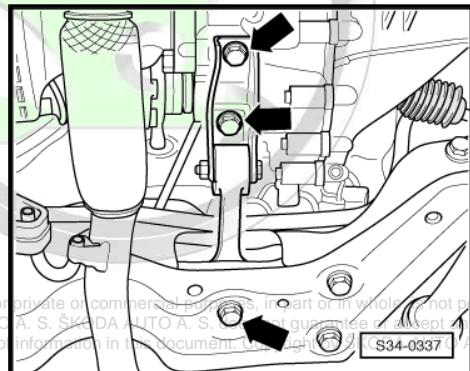
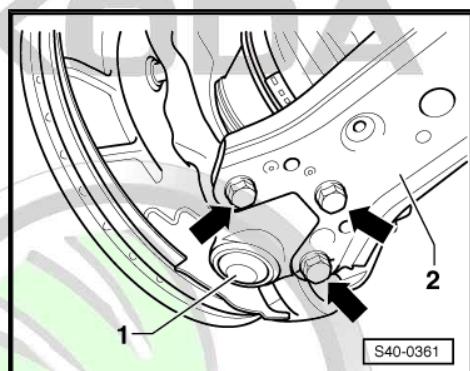


- Unscrew screws -arrows- for left steering joint ⇒ Chassis; Rep. gr. 40 .

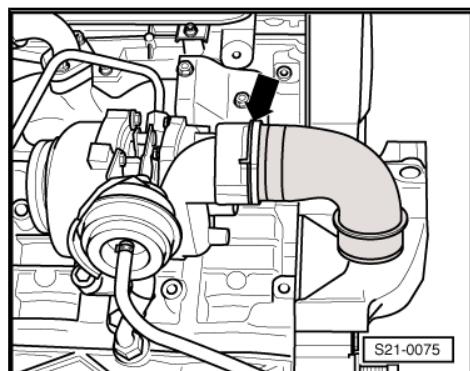
 Note

After installing the screws carry out the axial measurement ⇒ Chassis; Rep. gr. 44 .

- Remove right drive shaft from the gearbox. Then swivel out drive shaft and secure below front bumper with wire, outside the engine compartment ⇒ Chassis; Rep. gr. 40 .
- Unbolt the pendulum support -arrows-.

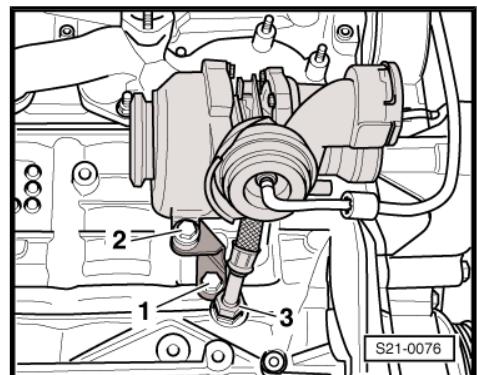


- Remove connecting hose -arrow-.





- Unscrew the oil return line -3- from the cylinder block.
- Release screws -1- and -2- and remove the support for turbocharger.
- Remove the vacuum hose from the vacuum unit for charge pressure control.
- Remove pre-exhaust pipe with catalytic converter:
 - ◆ Fabia II
 ⇒ [“1.3.1 Summary of components for engine with identification characters BSW”, page 390](#) .
 - ◆ Roomster
 ⇒ [“1.4.1 Summary of components for engine with identification characters AXR, BSW”, page 393](#) .
- Unscrew oil feed line from exhaust turbocharger and from exhaust manifold and lay it to one side.
- Remove connection pipe for exhaust gas recirculation between turbocharger and radiator for exhaust gas recirculation.
- Remove heat shield from exhaust manifold.
- Unbolt exhaust manifold with turbocharger from cylinder head
 ⇒ [“2.2.1 Summary of components for engine with identification characters AXR, BSW”, page 310](#) .
- Remove exhaust turbocharger with exhaust manifold downwards.



Install

Installation is carried out in reverse order. Pay attention to the following:

- Observe the assembly instruction for hose connections with push-fit couplings ⇒ [“2.11 Hose connections”, page 334](#) .
- Checking the oil level:
 - ◆ ⇒ Maintenance ; Booklet Fabia II .
 - ◆ ⇒ Maintenance ; Booklet Roomster .



Note

◆ *Replace the gaskets, the sealing rings and the self-locking nuts.*
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- ◆ *Fill exhaust turbocharger with engine oil through the connection fitting of the oil feed line.*
- ◆ *Hose connections and hoses of the charge air system must be free of oil and grease before being installed.*
- ◆ *Secure all hose connections with corresponding hose clips.*
- ◆ *After installing the exhaust turbocharger, run engine at idling speed for about 1 minute to ensure that oil is supplied to the exhaust turbocharger.*

Tightening torques

⇒ [“2.2.1 Summary of components for engine with identification characters AXR, BSW”, page 310](#)

2.4.2 Engine with identification characters BLS

Special tools and workshop equipment required



- ◆ Pliers for spring strap clamps



Caution

In case of mechanical damage to the exhaust gas turbocharger, e.g. damage of the compressor wheel, it is not sufficient to only replace the exhaust gas turbocharger. In order to prevent consequential damage to the engine, perform the following tasks:

- ◆ *Check air filter, air filter insert and charge air hoses as well as charge air pipes for soiling.*
- ◆ *Check all the air guides and the charge air cooler for foreign bodies.*

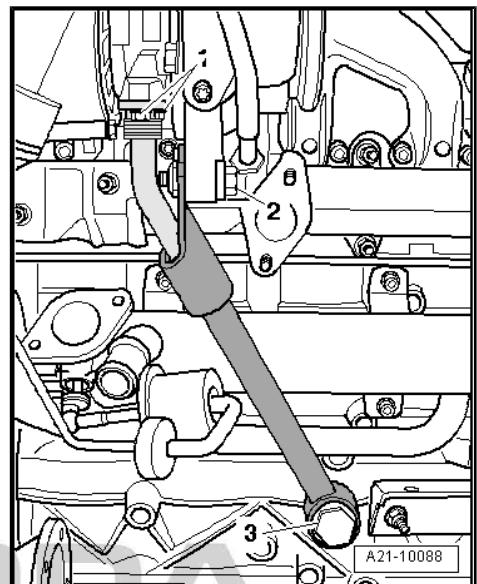
If soiling or foreign bodies are detected in the filling system, all air guides must be carefully cleaned and if necessary replace the charge air cooler.

Removing

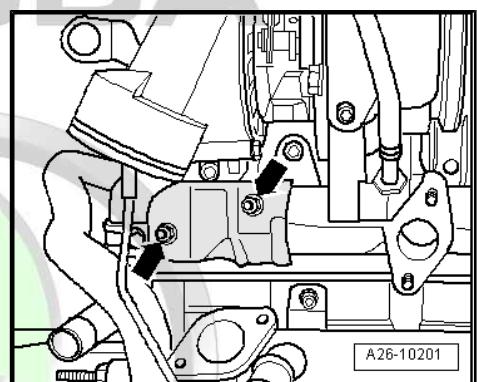
- Remove pre-exhaust pipe with diesel particle filter:
 - ◆ Fabia II
 ⇒ [“1.3.2 Summary of components for engine with identification characters BLS”, page 391](#) .
 - ◆ Roomster
 ⇒ [“1.4.2 Summary of components for engine with identification characters BLS”, page 394](#) .
- Unplug connector at air mass meter -G70-
 - ⇒ [“1.5 Summary of components - air filter \(Fabia II, Roomster\)”, page 364](#) .
- Remove intake hose from connection fitting for exhaust turbocharger and air filter
 - ⇒ [“1.5 Summary of components - air filter \(Fabia II, Roomster\)”, page 364](#) .
- Remove connection fitting.
- Remove vacuum line to vacuum setting element.
- Detach the oil feed line from the exhaust turbocharger.
- Disconnect and unhook cables to exhaust gas temperature sender 1 - G235- (temperature sender upstream turbocharger - G507-).
- Remove the charge air guide hose from the exhaust turbocharger
 - ⇒ [“2.7.2 Summary of components for engine with identification characters BLS”, page 330](#) .
- Remove radiator for exhaust gas recirculation
 - ⇒ [“2.2.2 Summary of components for engine with identification characters BLS”, page 417](#) .



- Release screws -1-, screw -2- and hollow screw -3-.



- Remove left heat shield at exhaust manifold -arrows-.



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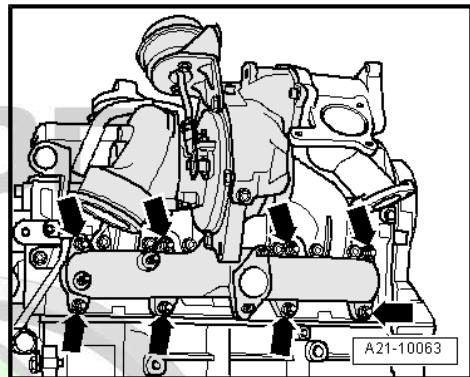
- Unscrew nuts -arrows- and remove exhaust manifold with exhaust turbocharger downwards.

Install

Install in the reverse order of removal. When doing this, note the following:

Note

- ◆ Replace the gaskets, the sealing rings and the self-locking nuts.
- ◆ Fill exhaust turbocharger with engine oil through the connection fitting of the oil feed line.
- ◆ Hose connections and hoses of the charge air system must be free of oil and grease before being installed.
- ◆ Secure all hose connections with corresponding hose clips.
- Observe the assembly instruction for hose connections with push-fit couplings [⇒ “2.11 Hose connections”, page 334](#).
- Checking the oil level:
 - ◆ ⇒ Maintenance ; Booklet Fabia II .
 - ◆ ⇒ Maintenance ; Booklet Roomster .



Note

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after installing the exhaust turbocharger run the engine approx. 1 minute in idle and do not increase speed immediately in order to ensure the supply of oil to the turbocharger.

2.5 Removing and installing parts of the charge air cooler (Superb II)

[⇒ “2.5.1 Summary of components for engine with identification characters BXE”, page 324](#)

[⇒ “2.5.2 Summary of components for engine with identification characters BLS”, page 326](#)

2.5.1 Summary of components for engine with identification characters BXE

Note

- ◆ Before testing or repairing, check all hoses and lines for tight connection and leaktightness.
- ◆ Hose connections and hoses of the charge air system must be free of oil and grease before being installed.
- ◆ Secure all hose connections with corresponding hose clips.

**1 - Screw**

8 Nm

2 - Support

Check fitting position

3 - Charge air cooler

removing and installing
 ⇒ "2.8 Removing and installing charge air cooler
 (Superb II)", page 330

4 - Charge air hose**5 - Screw**

8 Nm

6 - to exhaust gas turbocharger**7 - Air guide pipe****8 - to inlet connection with flap****9 - Vacuum reservoir****10 - Screw**

15 Nm

11 - Screw

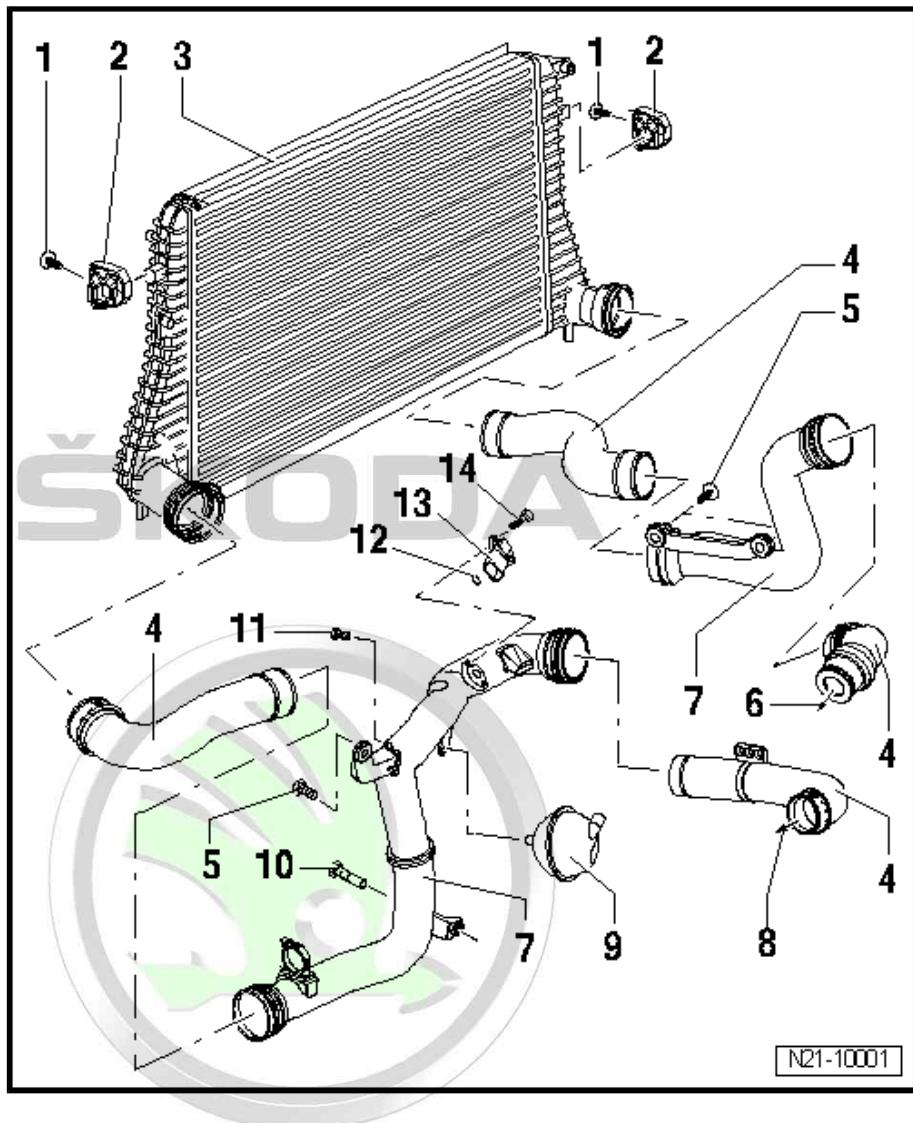
8 Nm

12 - O-ring

Replace after disassembly

13 - Charge pressure sender - G31- / Intake air temperature sender - G42-**14 - Screw**

3 Nm



N21-10001

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2.5.2 Summary of components for engine with identification characters BLS



Note

- ◆ Before testing or repairing, check all hoses and lines for tight connection and leaktightness.
- ◆ Hose connections and hoses of the charge air system must be free of oil and grease before being installed.
- ◆ Secure all hose connections with corresponding hose clips.

1 - Screw

- 8 Nm

2 - Support

- Check fitting position

3 - Charge air cooler

- removing and installing
[⇒ "2.8 Removing and installing charge air cooler \(Superb II\)", page 330](#)

4 - top seal

- fitted onto charge air cooler

5 - Screw

- 3 Nm

6 - Charge pressure sender - G31- / Intake air temperature sender - G42-

7 - O-ring

- replace if damaged

8 - Support

9 - Screw

- 5 Nm

10 - Charge air hose

11 - Air guide pipe

12 - Charge air hose

- for intake manifold flap motor -V157-

13 - Screw

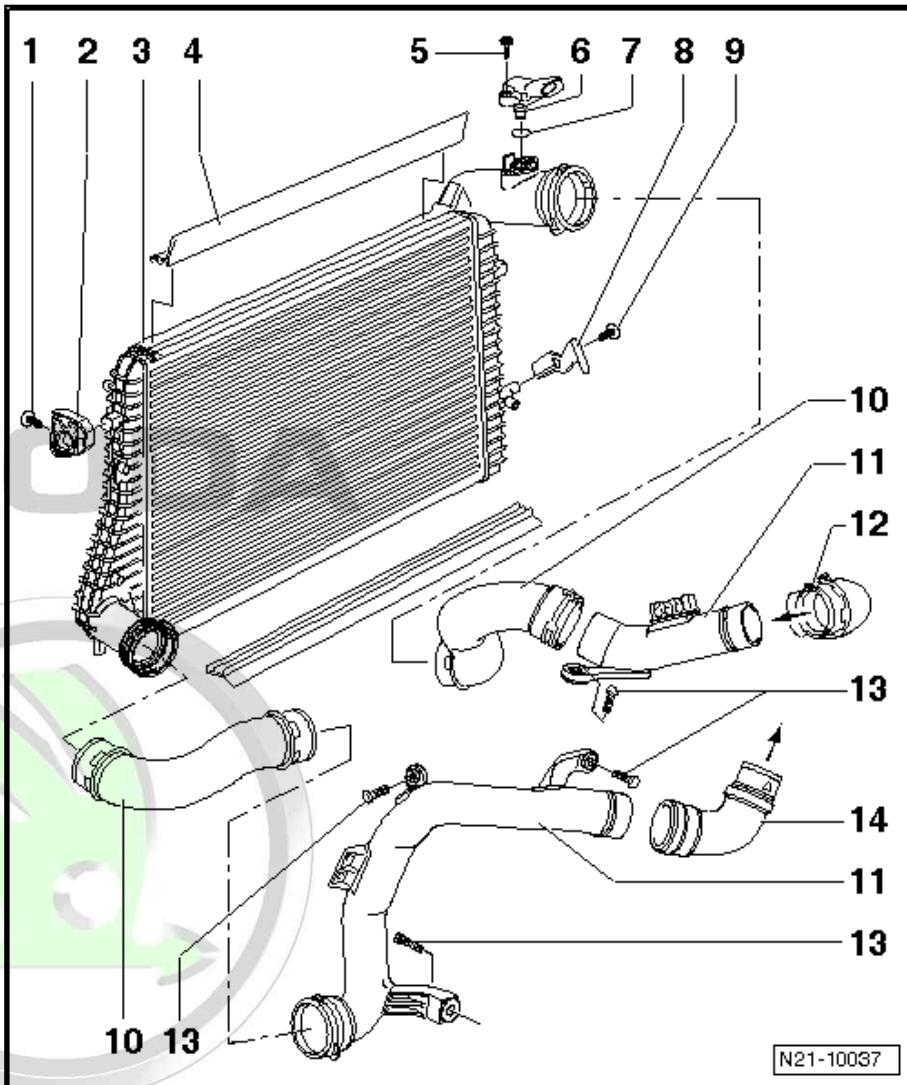
- 8 Nm

14 - Air guide hose

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15 - bottom seal

- fitted onto charge air cooler



N21-10037

2.6 Removing and installing parts of the charge air cooler (Octavia II)

[⇒ "2.6.1 Summary of components for engine with engine identification characters BJB, BKC, BXE", page 327](#)



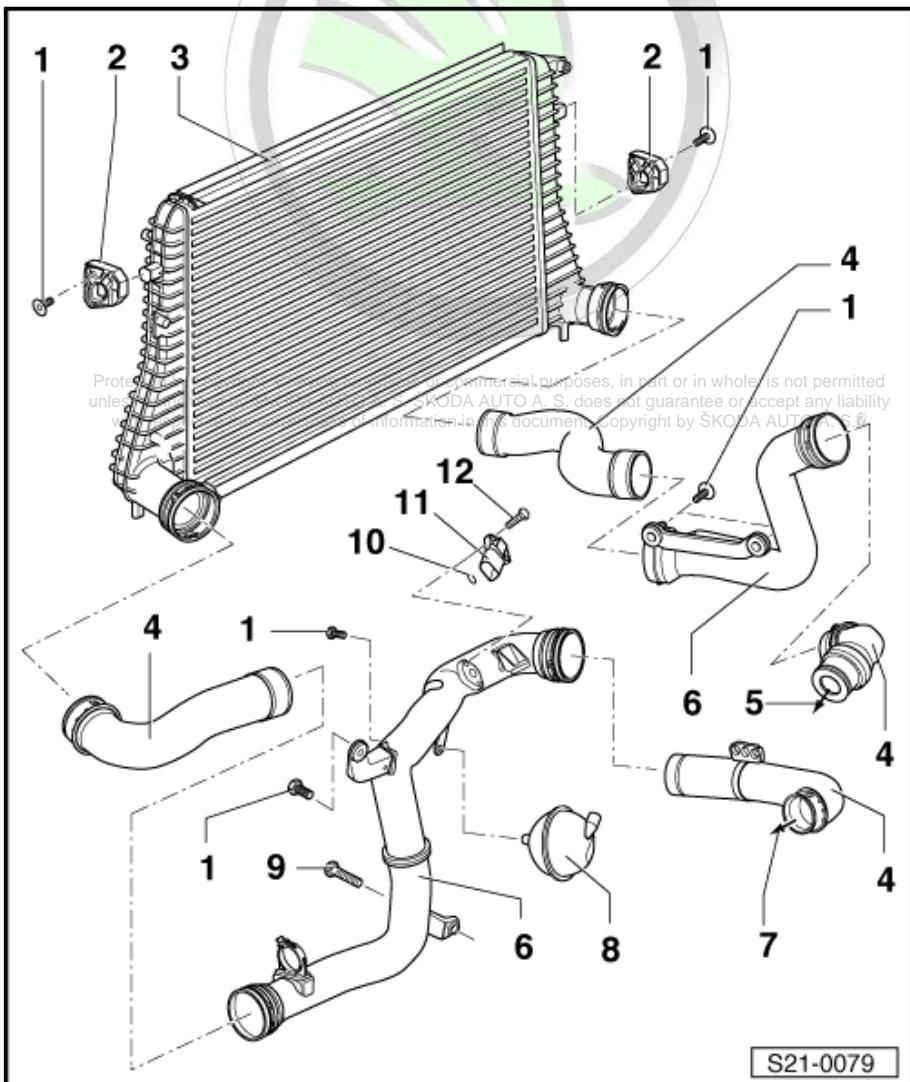
⇒ "2.6.2 Summary of components for engine with identification characters BLS", page 328

2.6.1 Summary of components for engine with engine identification characters BJB, BKC, BXE

Note

- ◆ Before testing or repairing, check all hoses and lines for tight connection and leaktightness.
- ◆ Hose connections and hoses of the charge air system must be free of oil and grease before being installed.
- ◆ Secure all hose connections with corresponding hose clips.

- 1 - Screw
 8 Nm
- 2 - Support
 Check fitting position
- 3 - Charge air cooler
 removing and installing
[⇒ "2.9 Removing and installing charge air cooler \(Octavia II\)", page 332](#)
- 4 - Connecting hose
- 5 - to exhaust gas turbocharger
- 6 - Charge air pipe
- 7 - to inlet connection with flap
- 8 - Vacuum reservoir
- 9 - Screw
 15 Nm
- 10 - O-ring
 Replace after disassembly
- 11 - Charge pressure sender - G31- / Intake air temperature sender -G42-
- 12 - Screw
 3 Nm





2.6.2 Summary of components for engine with identification characters BLS



Note

- ◆ Before testing or repairing, check all hoses and lines for tight connection and leaktightness.
- ◆ Hose connections and hoses of the charge air system must be free of oil and grease before being installed.
- ◆ Secure all hose connections with corresponding hose clips.

1 - Screw

- 8 Nm

2 - Support

- Check fitting position

3 - Charge air cooler

- removing and installing
⇒ "2.9 Removing and installing charge air cooler (Octavia II)", page 332

4 - top seal

- fitted onto charge air cooler

5 - Screw

- 3 Nm

6 - Charge pressure sender - G31- / Intake air temperature sender -G42-

7 - O-ring

- replace if damaged

8 - Support

9 - Screw

- 5 Nm

10 - Connecting hose

11 - Charge air pipe

12 - Connecting hose

- for intake manifold flap motor -V157-

13 - Screw

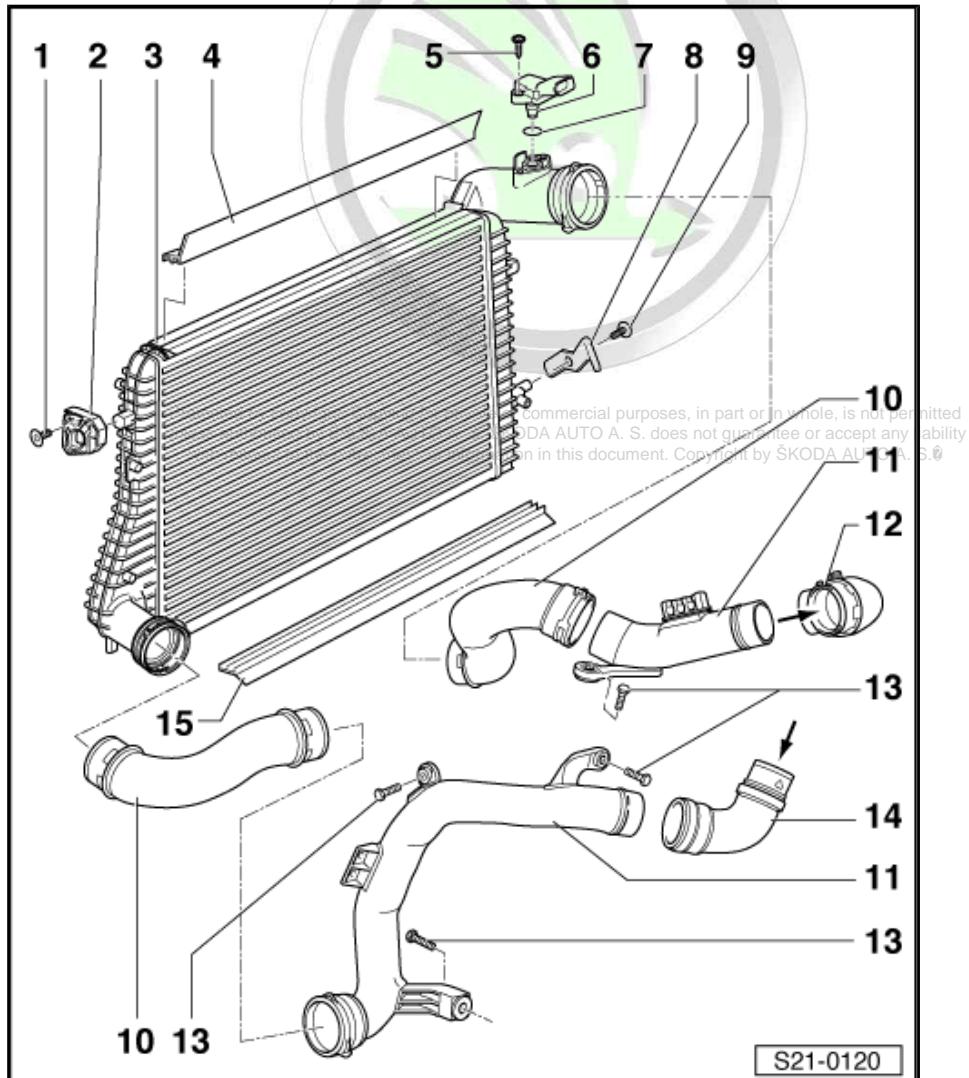
- 8 Nm

14 - Connecting hose

- to exhaust gas turbocharger

15 - bottom seal

- fitted onto charge air cooler



S21-0120

2.7 Removing and installing parts of the charge air cooler (Fabia II, Roomster)

⇒ "2.7.1 Summary of components for engine with identification characters AXR, BSW", page 329



⇒ "2.7.2 Summary of components for engine with identification characters BLS", page 330

2.7.1 Summary of components for engine with identification characters AXR, BSW

Note

- ◆ Before testing or repairing, check all hoses and lines for tight connection and leaktightness.
- ◆ Hose connections and hoses of the charge air system must be free of oil and grease before being installed.
- ◆ Secure all hose connections with corresponding hose clips.

1 - Air deflector

2 - Charge air cooler

- removing and installing
⇒ "2.10 Removing and installing charge air cooler (Fabia II, Roomster)", page 333

3 - Screw

- 8 Nm

4 - O-ring

- replace if damaged

5 - Intake manifold pressure sender - G71- with intake manifold temperature sender - G72-

6 - Support

7 - Screw

- 5 Nm

8 - Connecting hose

9 - Top charge-air pipe

10 - to inlet connection

11 - from air filter

12 - from cylinder head cover

- Crankcase ventilation

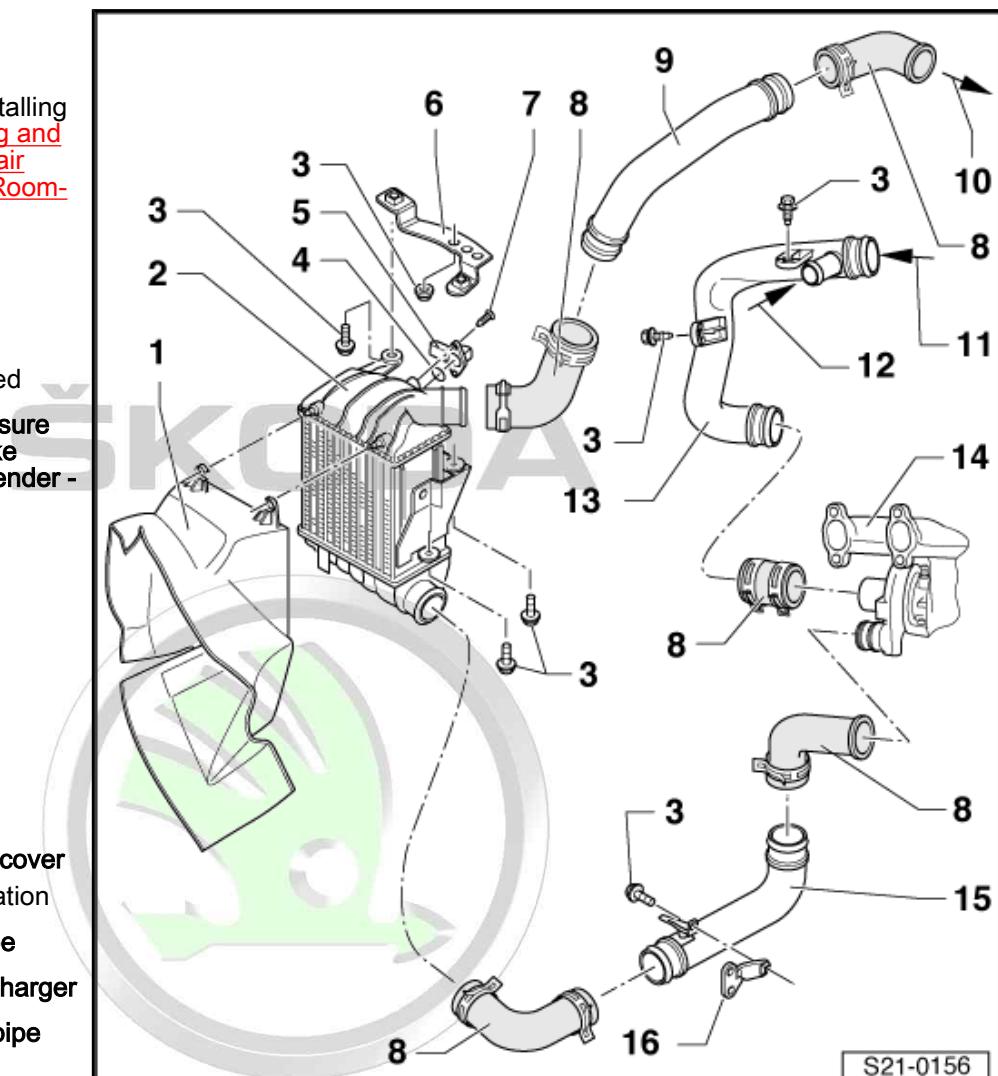
13 - Rear charge-air pipe

14 - Exhaust gas turbocharger

15 - Bottom charge air pipe

16 - Support

- screwed onto bracket for alternator (AC compressor)
⇒ "1.3 Summary of components - V-ribbed belt (Fabia II, Roomster)", page 38



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2.7.2 Summary of components for engine with identification characters BLS



Note

- ◆ Before testing or repairing, check all hoses and lines for tight connection and leaktightness.
- ◆ Hose connections and hoses of the charge air system must be free of oil and grease before being installed.
- ◆ Secure all hose connections with corresponding hose clips.

1 - Air deflector

2 - Charge air cooler

- removing and installing
⇒ "2.10 Removing and installing charge air cooler (Fabia II, Roomster)", page 333

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3 - Screw

- 8 Nm

4 - Support

5 - Connecting hose

6 - Charge air pipe

- from charge air cooler to connection fitting

7 - O-ring

- replace if damaged

8 - to inlet connection

9 - Screw

- 3 Nm

10 - Charge pressure sender - G31- with intake air temperature sender - G42-

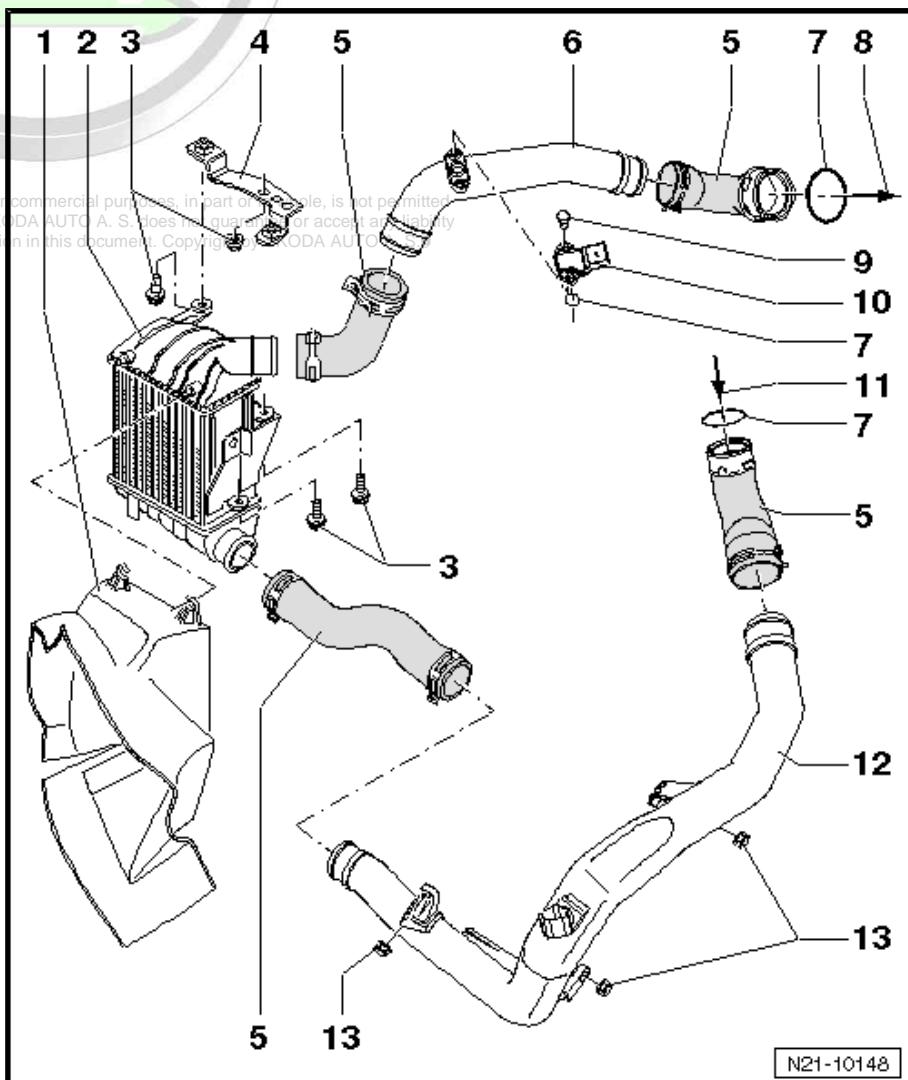
11 - from exhaust turbocharger

12 - Charge air pipe

- from exhaust turbocharger to charge air cooler

13 - Nut

- 8 Nm



2.8 Removing and installing charge air cooler (Superb II)

Special tools and workshop equipment required

- ◆ Pliers for spring strap clamps



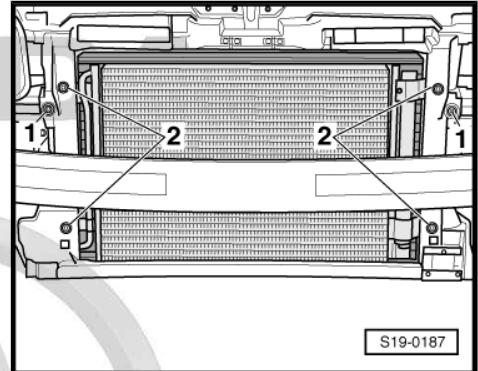
Removing

- Remove coolant radiator
[⇒ "2.3 Removing and installing radiator \(Octavia II, Superb II\)", page 222 .](#)
- Remove front bumper ⇒ Body Work; Rep. gr. 63 .
- Detach the charge air hoses on the left and right of the charge air cooler.
- Release screws -1- at charge air cooler.
 - ◆ Engine identification characters BXE
[⇒ "2.5.1 Summary of components for engine with identification characters BXE", page 324 -Pos. 1-.](#)
 - ◆ Engine identification characters BLS
[⇒ "2.5.2 Summary of components for engine with identification characters BLS", page 326 -Pos. 1-.](#)



WARNING

Do not open the refrigerant circuit of the air conditioning system.



S19-0187



Note

- ◆ To avoid damaging the condenser, wiring and air conditioning hoses make sure the lines and hoses are not excessively expanded, buckled or bent.
- ◆ For the following operations a second mechanic is required to hold the charge air cooler.
- Swivel the charge air cooler towards the rear, remove the lateral bearings and unhook out of the lower bearings.

For vehicles with air conditioning

- Release the securing bolts -arrows- of the condenser.

Continued for all vehicles

- Remove charge air cooler downwards.

Install

Install in the reverse order of removal. When doing this, note the following:

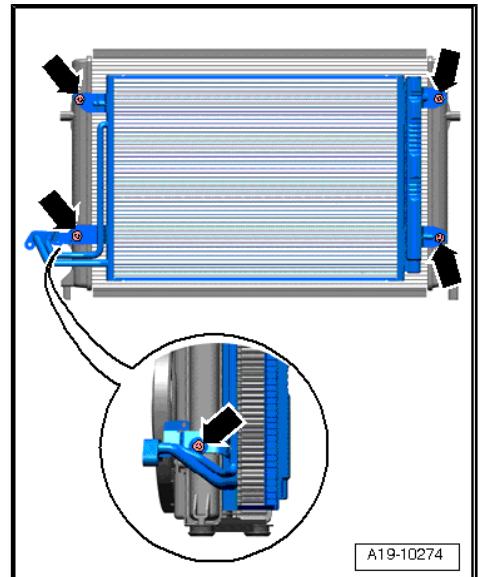
- Install front bumper ⇒ Body Work; Rep. gr. 63 .



Note

Replace O-rings.

- Observe the assembly instruction for hose connections with push-fit couplings [⇒ "2.11 Hose connections", page 334 .](#)
- Install coolant radiator
[⇒ "2.3 Removing and installing radiator \(Octavia II, Superb II\)", page 222 .](#)



A19-10274



2.9 Removing and installing charge air cooler (Octavia II)

Special tools and workshop equipment required

- ◆ Pliers for spring strap clamps

Removing

- Remove coolant radiator
[⇒ "2.3 Removing and installing radiator \(Octavia II, Superb II\)", page 222](#) .
- Remove front bumper ⇒ Body Work; Rep. gr. 63 .
- Detach the charge air hoses on the left and right of the charge air cooler.



WARNING

Do not open the refrigerant circuit of the air conditioning system.



Note

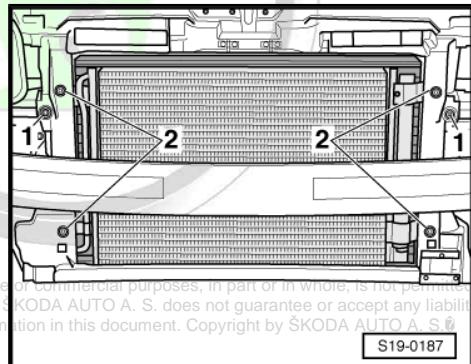
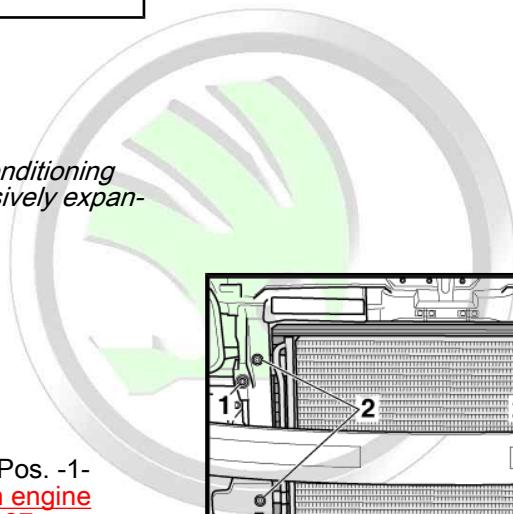
To avoid damaging the condenser, wiring and air conditioning hoses make sure the lines and hoses are not excessively expanded, buckled or bent.

For vehicles with air conditioning

- Screw out the fixing screws -2- of the condenser.

Continued for all vehicles

- Release screws at charge air cooler:
- ◆ Engine identification characters BJB, BKC, BXE Pos. -1-
[⇒ "2.6.1 Summary of components for engine with engine identification characters BJB, BKC, BXE", page 327](#) .
- ◆ Engine identification characters BLS Pos. -1-
[⇒ "2.6.2 Summary of components for engine with identification characters BLS", page 328](#) .



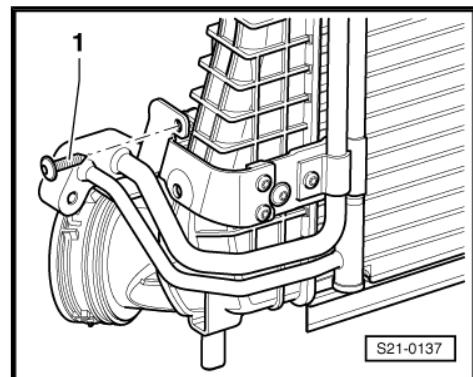


- Press off the charge air cooler from the lock carrier with the assistance of a 2nd mechanic so that the fixing screw -1- for the coolant lines on the radiator is accessible.
- Remove screw -1-.
- Carefully remove radiator downwards.

Install

Install in the reverse order of removal. When doing this, note the following:

- Install front bumper ⇒ Body Work; Rep. gr. 63 .



Note

Replace O-rings.

- Observe the assembly instruction for hose connections with push-fit couplings ⇒ “[2.11 Hose connections](#)”, page 334 .
- Install coolant radiator
⇒ “[2.3 Removing and installing radiator \(Octavia II, Superb II\)](#)”, page 222 .

2.10 Removing and installing charge air cooler (Fabia II, Roomster)

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Special tools and workshop equipment required

- ◆ Pliers for spring strap clamps

Removing

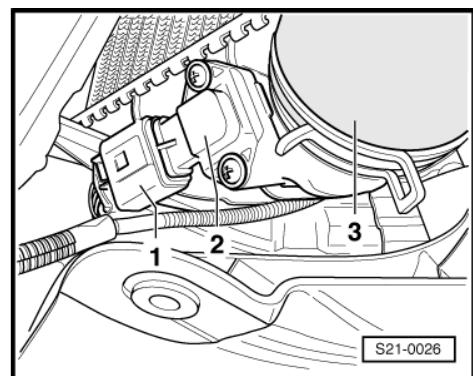
- Remove the front right wheelhouse liner ⇒ Body Work; Rep. gr. 66 .
- Remove front bumper ⇒ Body Work; Rep. gr. 63 .

For engine with engine code AXR, BSW

- Unplug connector -1- from intake manifold pressure sender - G71- with intake manifold temperature sender - G72- -2-.

Continued for all vehicles

- Remove the connecting hose -3- from the supports of charge-air cooler.
- Remove front air guide.





- Remove the connecting hose -1- from the charge-air cooler -3-.
- Release screws -2- and remove charge-air cooler -3-.

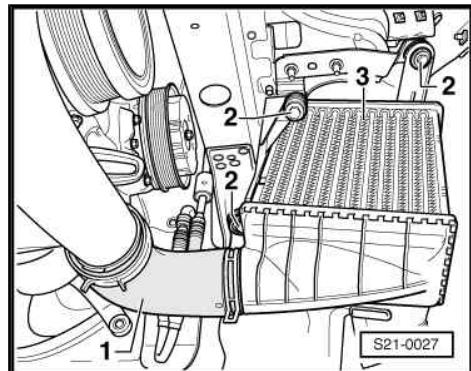
Install

Installation is performed in the reverse order, pay attention to the following points:



Note

- ◆ Replace O-rings.
- ◆ Observe the assembly instruction for hose connections with push-fit couplings ⇒ [“2.11 Hose connections”, page 334](#).



2.11 Hose connections

⇒ [“2.11.1 Assembly of hose connections with push-fit couplings”, page 334](#)

⇒ [“2.11.2 Hose connections with spring strap ring”, page 335](#)

2.11.1 Assembly of hose connections with push-fit couplings



Caution

The gasket ring for the push-fit coupling can be damaged, if the locking clip is in the lock position during the assembly. This could result in a leakage. Observe the assembly instruction.



Note

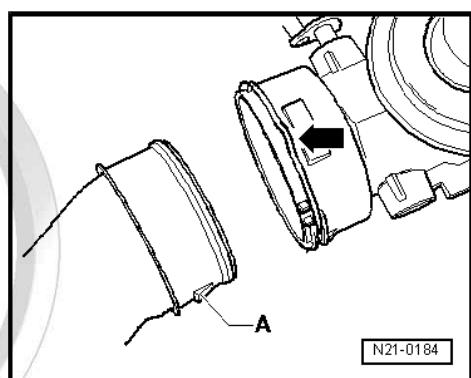
All hose connections of the charge air system are secured with spring strap clamps or push-fit couplings. For the push-fit couplings pay attention to the following points:

Removing

- Release push-fit coupling by pulling the locking clip -arrow-. Disconnect hose/pipe without auxiliary tool.

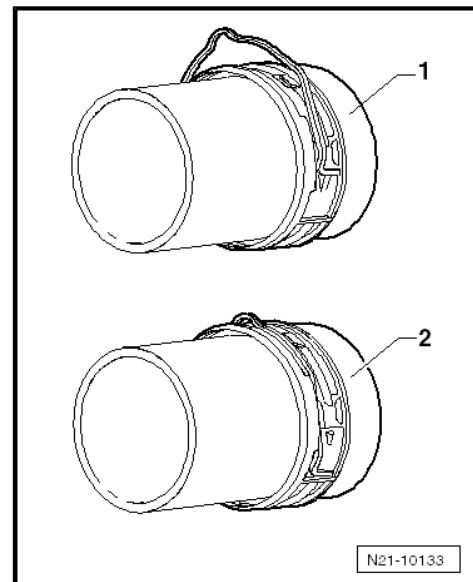
Install

- Observe that the retaining lugs latch when installing -A-.
- When replacing the gasket ring, place the gasket ring in the groove of the charge air hose. Make sure that the gasket ring is fully seated all round in the groove.
- Oil sealing surface and gasket ring.





- Move the locking clip in the position "unlocked" -1-.
- Insert the charge air hose up to the stop into the coupling.
- Move the locking clip in the position "locked" -2- and then once again press on the charge air hose.
- Check for correct seating and the correct locking in place of the push-fit coupling by pulling on the hose.

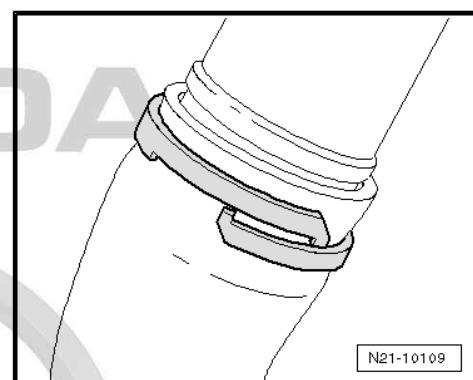


2.11.2 Hose connections with spring strap ring



Note

After disassembling and assembling the charge air lines with spring strap clamps, there is a risk of the "hose slipping off" when driving. For this reason, spring strap rings are installed, which can only be opened when there is a defect of the appropriate charge air line. When carrying out repairs, the spring strap ring must be destroyed using a suitable tool and replaced by a spare part according to the ⇒ Electronic Catalogue of Original Parts .



2.12 Checking the charge-air system for leaktightness

Special tools and workshop equipment required

- ◆ Charge-air system testing device , e. g. -V.A.G 1687-
- ◆ Adapter , e.g. -V.A.G 1687/10-

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Test sequence

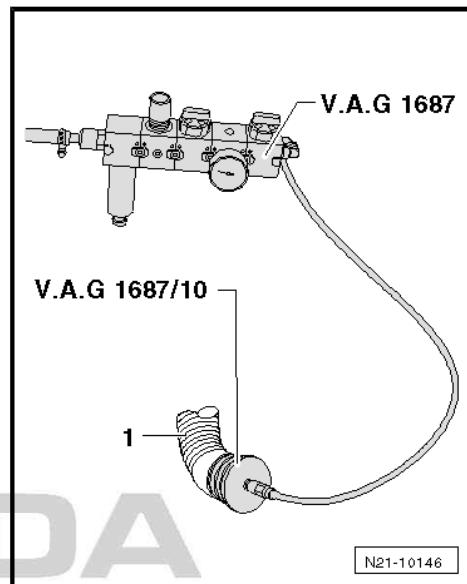
- Remove the intake hose -1- from the air filter.
- Fit adapter -1687/10- into the intake hose -1- and secure with a clamp.

Prepare tester for charge air system -V.A.G 1687- as follows:



Note

The rotary knob must be pulled to the top in order to rotate the pressure control valve -2-.

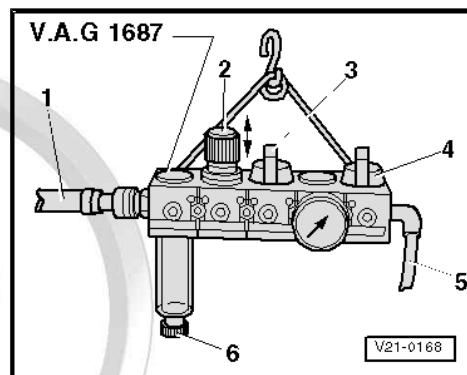


- Unscrew pressure control valve -2- fully and close the valves -3- and -4-.
- Connect the pneumatic hose -1- (pneumatic support) to tester for charge air system.



Note

If there is water in the inspection glass, drain water via the drain plug -6-.



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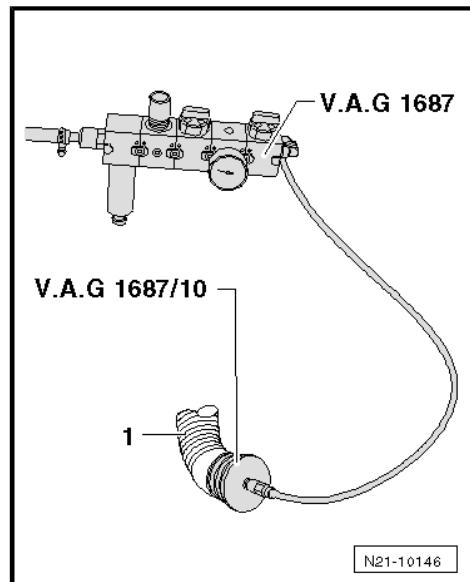
- Connect tester for charge air system - V.A.G 1687- to adapter -1687/10- .
- Open valve -3-.
- Set the pressure to 0,05 MPa (0,5 bar) with the pressure control valve -2-.



Caution

The pressure must not be greater than 0,05 MPa (0,5 bar)! A too high pressure can damage the engine.

- Open valve -4- and wait until the test circuit is filled. If necessary regulate the pressure to 0,05 MPa (0,5 bar).
- Listen to, touch or use commercially available leak search spray or the ultrasonic measuring device e. g. -V.A.G 1842- to check the charge-air system for leak points.



Note

- ◆ Minor leaks are permissible on the suction side of the turbocharger, because the intake hoses are not designed for overpressure.
- ◆ A small amount of air penetrates via the valves into the engine. For this reason no pressure test is possible.
- ◆ Use of ultrasonic measuring device -V.A.G 1842- ⇒ Operating instructions .
- ◆ In case of a leak point, observe the instructions for charge air system
⇒ "3.5 General instructions for charge air system with exhaust turbocharger" page 6 during the installation.
- ◆ Before removing the adapter, depressurize the test circuit by detaching the coupling from the adapter -1687/10- .

2.13 Replacing and adjusting the vacuum setting element for exhaust gas turbocharger on engines with identification characters BLS (Octavia II, Superb II)

Special tools and workshop equipment required

- ◆ 10 mm wrench socket - T10454-
- ◆ Ring spanner 10 x 12 - T10423-
- ◆ Key - T10461-
- ◆ Hand vacuum pump , e.g. -VAS 6213-
- ◆ Turbocharger tester - V.A.G1397 A-
- ◆ Pressure control valve - VAS 6342-
- ◆ Feeler gauge 0.05 mm



Note

In order to replace the vacuum setting element, the spare part set is used ⇒ Electronic Catalogue of Original Parts .



Removing

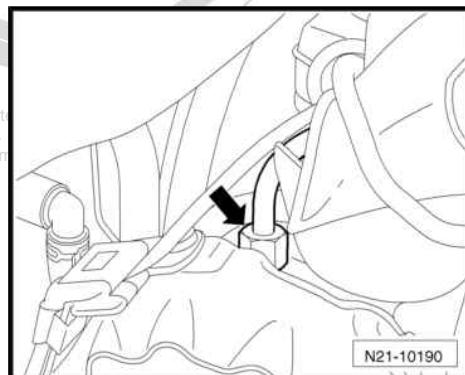
- Remove cover and bulkhead plenum chamber ⇒ Body Work;
Rep. gr. 66 .
- Remove the connecting pipe for the crankcase ventilation from the cylinder head cover, to do so press together the release buttons.
- Remove intake hose to exhaust turbocharger
⇒ "1.4 Summary of components - air filter (Octavia II, Superb II)", page 364 .
- Close the inlet opening of the exhaust gas turbocharger with a screw cap from the spare part set.
- Detach vacuum line from vacuum setting element for exhaust gas turbocharger.



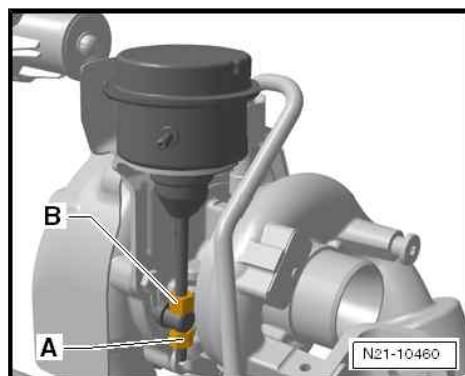
Caution

When slackening the union nut of the oil feed line, it is absolutely essential to counterhold the connection fitting on the exhaust gas turbocharger with the wrench - T10461- .

- Unscrew the union nut of the oil feed line -arrow-, to do so counterhold the connection fitting on the exhaust gas turbocharger with the wrench - T10461- .
- Close the opening of the connection fitting on the exhaust gas turbocharger with a plug from the spare part set.

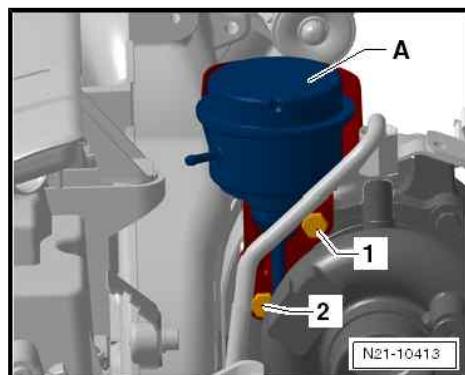


- Counterhold the counternut -B- with ring spanner - T10423- and unscrew the fixing nut -A- from the control rod with socket wrench - T10454- .



- Unscrew screw -1-, then screw -2- and remove vacuum setting element -A-.

Install





- Mark the opposite position of the pressure box of the vacuum setting element and the control rod in the released position, as shown, in different colours.



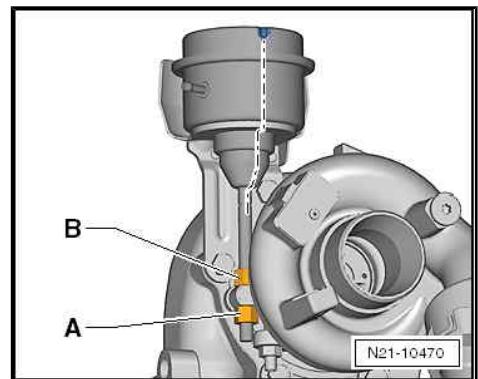
Note

The colour marking makes it possible to check the opposite position of the pressure box of the vacuum setting element and the control rod once more after tightening both nuts on the control rod and, if necessary, to correct any twisting.



Caution

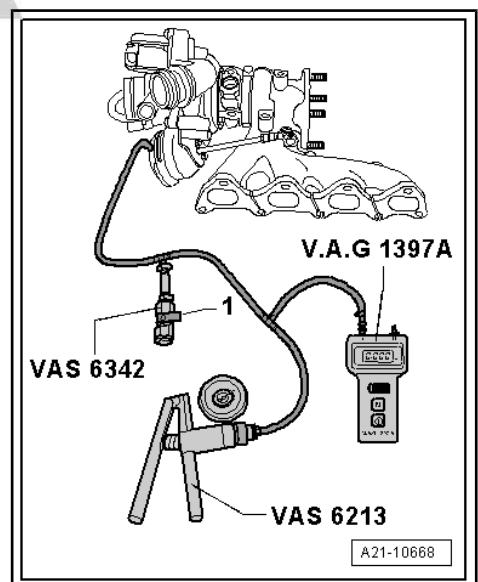
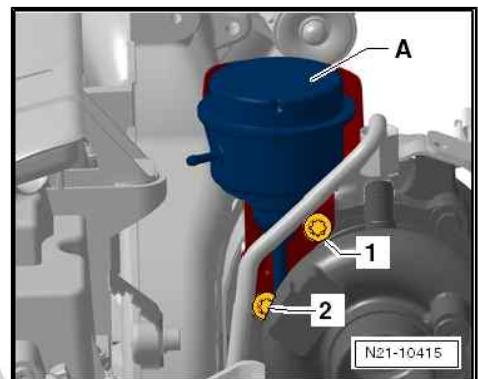
Only use new screws and nuts from the spare part set.



- If necessary, remove the fixing nut from the control rod of the new vacuum setting element.
- Screw the counternut onto the control rod of the new vacuum setting element by hand up to the thread end and pull the control rod through the opening of the operating lever on the exhaust gas turbocharger.
- Move the vacuum setting element -A- in its installed position and screw in screws -1- and -2-. Tightening torque 8 Nm.

Setting

- Switch on the turbocharger tester - V.A.G1397 A- and position the sliding switch to position "I", and read the measured value of the atmospheric pressure in mbar.
- Deduct 600 mbar from the indicated atmospheric pressure and note as "value 1".
- Deduct 650 mbar from the indicated atmospheric pressure and note as "value 2".
- Fit together the hand vacuum pump - VAS 6213- with the pressure control valve - VAS 6342- as shown in the figure and connect at the connection "I" of the turbocharger tester - V.A.G1397 A- as well as at the vacuum setting element.
- Connect the lever -1- at the pressure control valve - VAS 6342- .



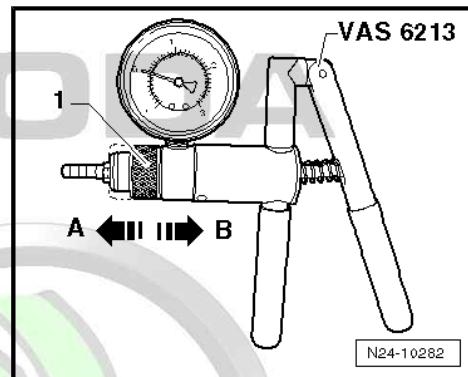


- Put the sliding ring -1- of the hand vacuum pump - VAS 6213- in position -A- for vacuum.



Caution

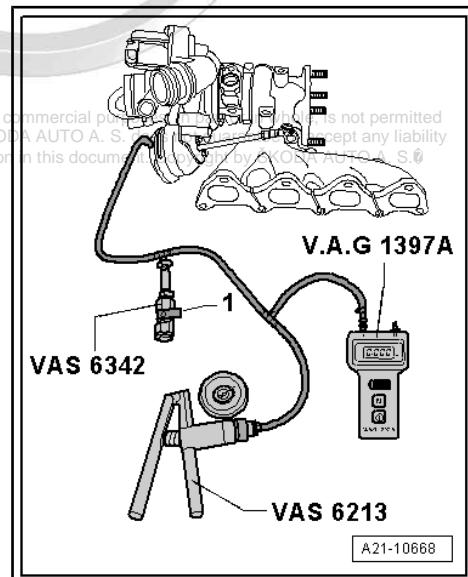
**Risk of damage to the pressure box from excessive vacuum.
The pressure of the read off atmospheric pressure must not be less than 800 mbar.**



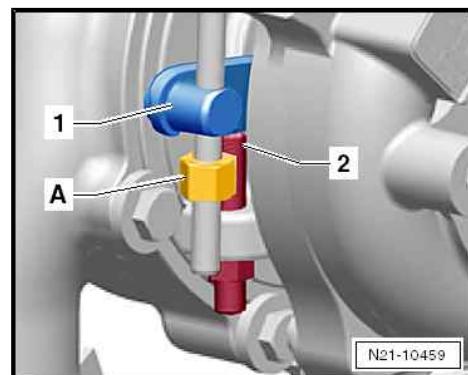
Note

- ◆ An accuracy of "value 2" is sufficient when setting ± 20 mbar.
- ◆ Ensure that the adjusting lever of the exhaust gas turbocharger moves smoothly on the control rod.
- Operate the hand vacuum pump - VAS 6213- repeatedly until the noted "value 2" is shown on the turbocharger tester - V.A.G1397 A- .
- Set the noted "value 1" accurately by opening the lever -1- of the pressure control valve - VAS 6342- .
- Screw the fixing nut -A- a couple of thread turns onto the control rod.

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- Hold the adjusting lever -1- fully on the adjusting screw -2- by hand.



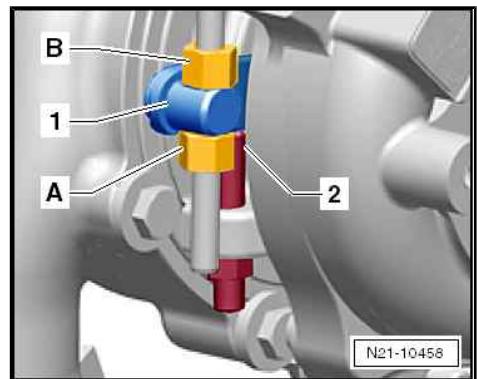


- Slowly unscrew the counternut -B- of the control rod by hand until it makes contact with the adjusting lever, do not turn further.
- Turn the fixing nut -A- on the control rod against the adjusting lever of the exhaust gas turbocharger -1-.



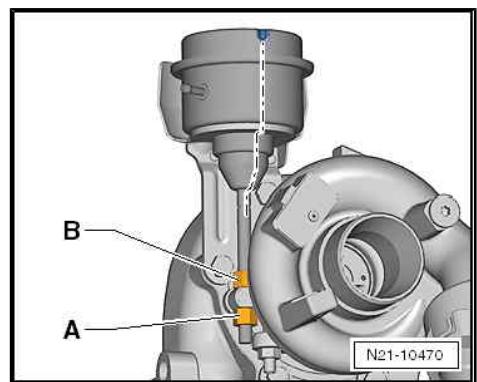
Note

When tightening the fixing nut -A-, ensure that the control rod does not twist.

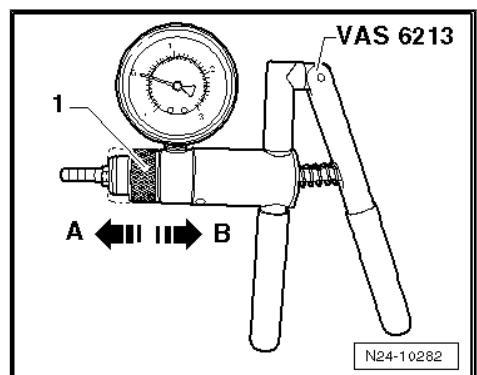
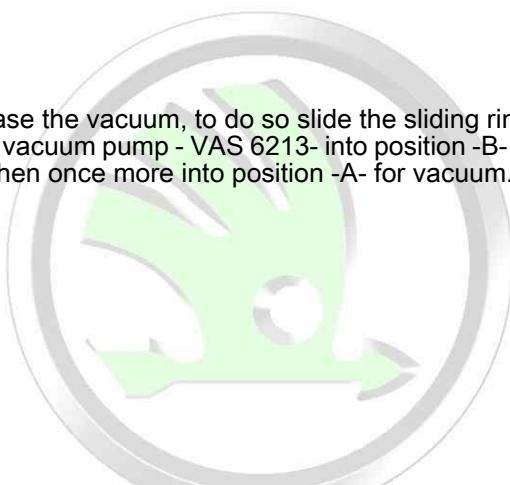


- Counterhold the counternut -B- with the ring spanner -T10423- and tighten the fixing nut -A- with a 10 mm socket wrench - T10454- .
- Check the colour markings applied on the vacuum unit as well as on the control rod:
- The markings must be flush.

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- Release the vacuum, to do so slide the sliding ring -1- of the hand vacuum pump - VAS 6213- into position -B- for pressure and then once more into position -A- for vacuum.

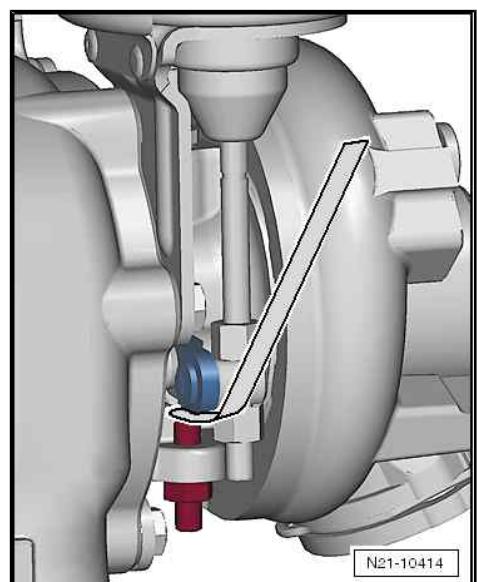


- Position the feeler gauge of 0.05 mm, as shown in the figure, between the adjusting lever and the adjusting screw.
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 Now operate the hand vacuum pump - VAS 6213- until the feeler gauge of 0.05 mm is jammed between the adjusting lever and the adjusting screw.
- While doing so, read the pressure on the turbocharger tester - V.A.G1397 A- .

Specified value: the noted “value” 1 ± 20 mbar.

The value is o.k.

- Use seal paint from the spare part set to seal the connection of the control rod/fixing nut.





- Press the lock washer on the control rod by hand and turn it 90° in -direction of arrow-.

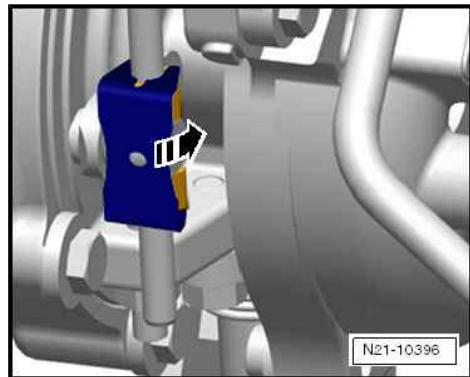
The value is not o.k.

- Repeat the adjustment procedure [⇒ page 339](#).

Complete installation

Further installation occurs in reverse order for removal, while paying attention to the following:

- Remove the plug from the connection fitting on the exhaust gas turbocharger, install the oil feed line and tighten the union nut to 22 Nm.
- Remove the screw cap from the inlet opening of the exhaust gas turbocharger.
- Start engine and erase event memory ⇒ Vehicle diagnostic tester.



2.14 Replacing and adjusting the vacuum setting element for exhaust gas turbocharger on engines with identification characters BJB (Octavia II)

Special tools and workshop equipment required

- ◆ Pliers for spring strap clamps
- ◆ 10 mm wrench socket - T10422-
- ◆ Ring spanner 10 x 12 - T10423-
- ◆ Hand vacuum pump , e.g. -VAS 6213-
- ◆ Turbocharger tester - V.A.G1397 A-
- ◆ Pressure control valve - VAS 6342-
- ◆ Feeler gauge 0.05 mm



Caution

The special tools listed, in particular the socket wrench - T10422-, must be used exclusively as described below and must not be used for any other screwed connections. Risk of deformations, opening and slipping of the wrench at higher tightening torques.



In order to replace the vacuum setting element, the spare part set is used ⇒ Electronic Catalogue of Original Parts .

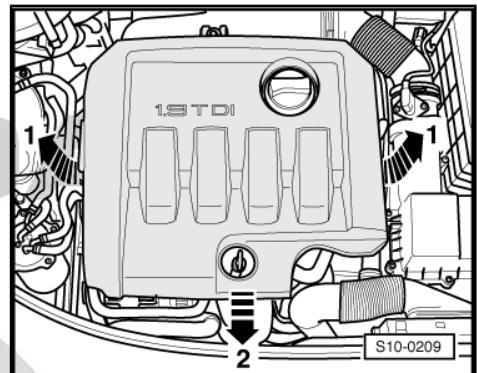
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Removing

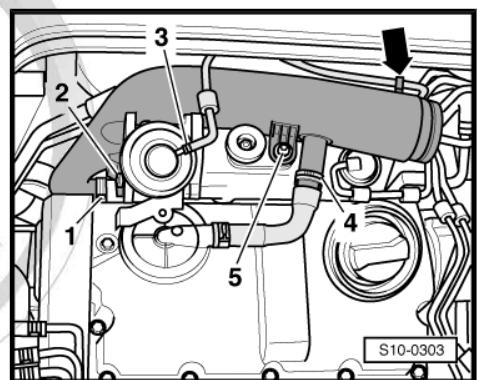
- Lift the engine cover at the sides -arrows 1- and pull out towards the front -arrow 2-.

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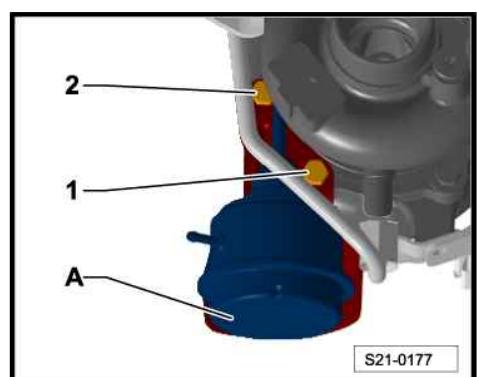
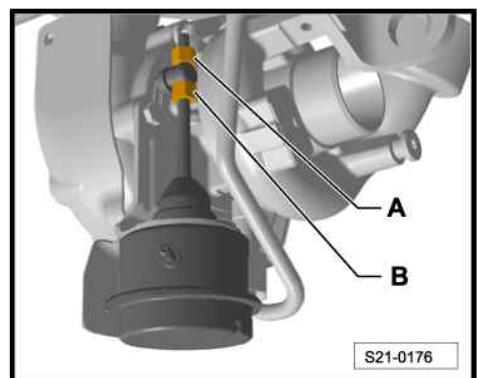
- Disconnect vacuum hose -3- from mechanical exhaust gas recirculation valve and hose to vacuum setting element of intake manifold flap. Expose cable harness -arrow-.
- Disconnect pipe to crankcase ventilation -4- at air guide pipe.
- Release spring strap clips -1- at exhaust turbocharger.
- Release screws -2- and -5- and remove air guide pipe.
- Remove connecting pipe for exhaust gas recirculation
⇒ "2.1.3 Summary of components for engine with engine identification characters BJB (Octavia II)", page 415 .
- Detach the connecting hose and remove the inlet connection
⇒ "1.3.1 Summary of components for engine with engine identification characters BJB (Octavia II)", page 360 .
- Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
- Detach vacuum line from vacuum setting element for exhaust gas turbocharger.

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- Unscrew screw -1-, then screw -2- and remove vacuum setting element -A-.

Install





- Mark the opposite position of the pressure box of the vacuum setting element and the control rod in the released position, as shown, in different colours.

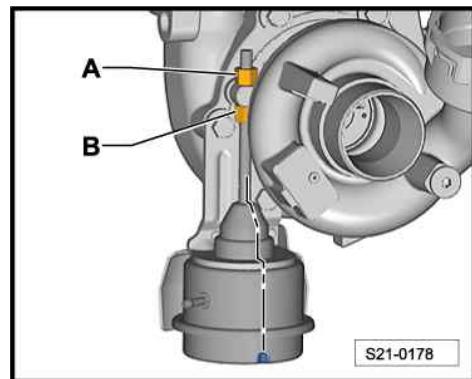
Note

The colour marking makes it possible to check the opposite position of the pressure box of the vacuum setting element and the control rod once more after tightening both nuts on the control rod and, if necessary, to correct any twisting.



Caution

Only use new screws and nuts from the spare part set.

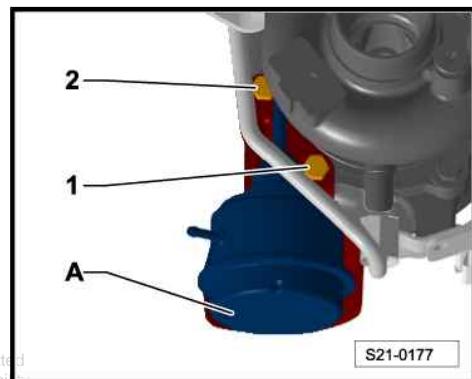


S21-0178

- If necessary, remove the fixing nut from the control rod of the new vacuum setting element.
- Screw the counternut onto the control rod of the new vacuum setting element by hand up to the thread end and pull the control rod through the opening of the operating lever on the exhaust gas turbocharger.
- Move the vacuum setting element -A- in its installed position and screw in screws -1- and -2-. Tightening torque 8 Nm.

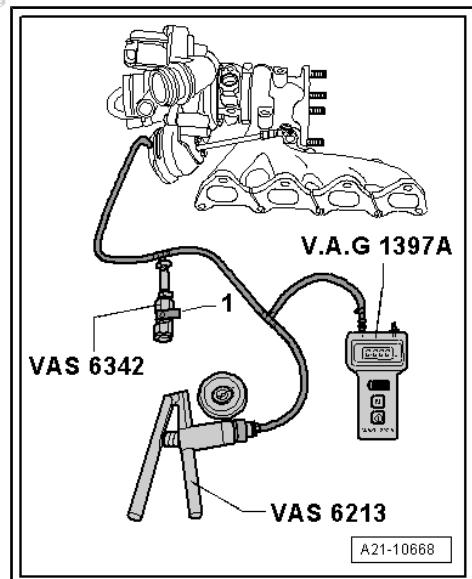
Setting

- Switch on the turbocharger tester - V.A.G1397 A- and position the sliding switch to position "I", and read the measured value of the atmospheric pressure in mbar.
- Deduct 600 mbar from the indicated atmospheric pressure and note as "value 1".
- Deduct 650 mbar from the indicated atmospheric pressure and note as "value 2".



S21-0177

- Fit together the hand vacuum pump - VAS 6213- with the pressure control valve - VAS 6342- as shown in the figure and connect at the connection "I" of the turbocharger tester - V.A.G1397 A- as well as at the vacuum setting element.
- Connect the lever -1- at the pressure control valve - VAS 6342- .



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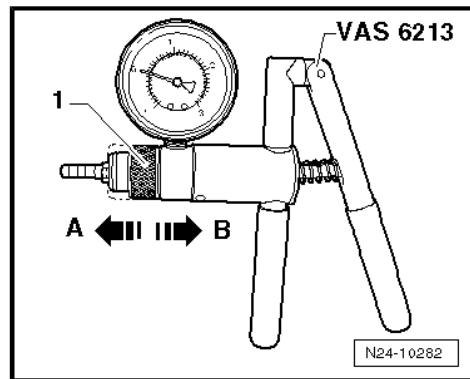


- Put the sliding ring -1- of the hand vacuum pump - VAS 6213- in position -A- for vacuum.



Caution

**Risk of damage to the pressure box from excessive vacuum.
 The pressure of the read off atmospheric pressure must not be less than 800 mbar.**



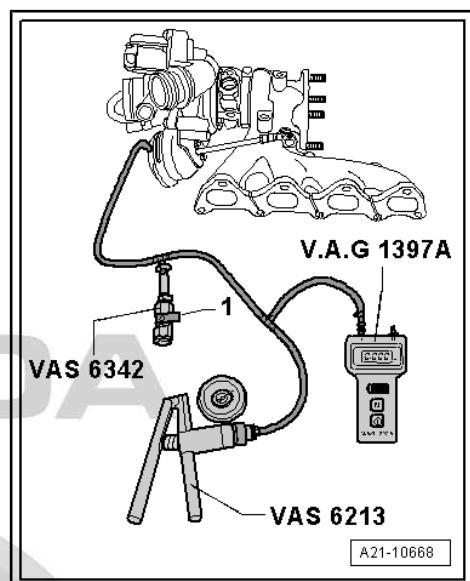
Note

- An accuracy of "value 2" is sufficient when setting ± 20 mbar.
- Ensure that the adjusting lever of the exhaust gas turbocharger moves smoothly on the control rod.
- Operate the hand vacuum pump - VAS 6213- repeatedly until the noted "value 2" is shown on the turbocharger tester - V.A.G1397 A- .
- Set the noted "value 1" accurately by opening the lever -1- of the pressure control valve - VAS 6342- .
- Screw the fixing nut -A- a couple of thread turns onto the control rod.

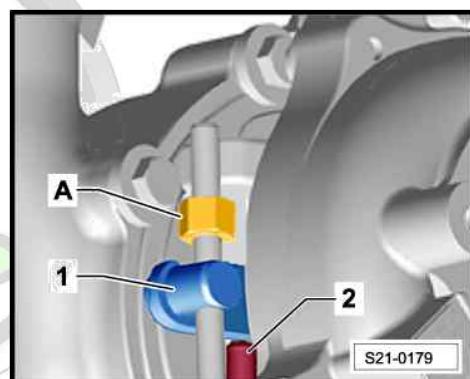


Note

- When starting the following work step, ensure that the adjusting lever of the exhaust gas turbocharger -1- will rest on the adjusting screw -2- and does no longer lie on the fixing nut -A-.
- If this is the case, turn back the fixing nut -A-.



- Hold the adjusting lever -1- fully on the adjusting screw -2- by hand.



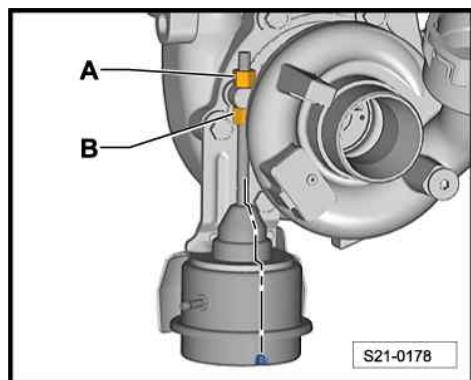
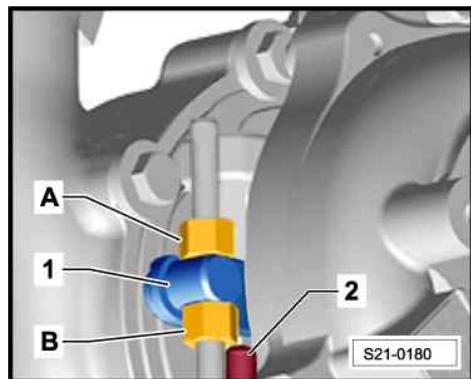


- Slowly unscrew the counternut -B- of the control rod by hand until it makes contact with the adjusting lever, do not turn further.
- Turn the fixing nut -A- on the control rod against the adjusting lever of the exhaust gas turbocharger -1-.

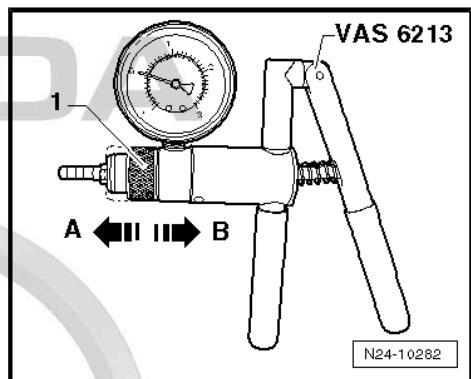
 **Note**

When tightening the fixing nut -A-, ensure that the control rod does not twist.

- Counterhold the counternut -B- with the ring spanner -T10423- and tighten the fixing nut -A- with a 10 mm socket wrench - T10422- .
- Check the colour markings applied on the vacuum unit as well as on the control rod:
- The markings must be flush.



- Release the vacuum, to do so slide the sliding ring -1- of the hand vacuum pump - VAS 6213- into position -B- for pressure and then once more into position -A- for vacuum.



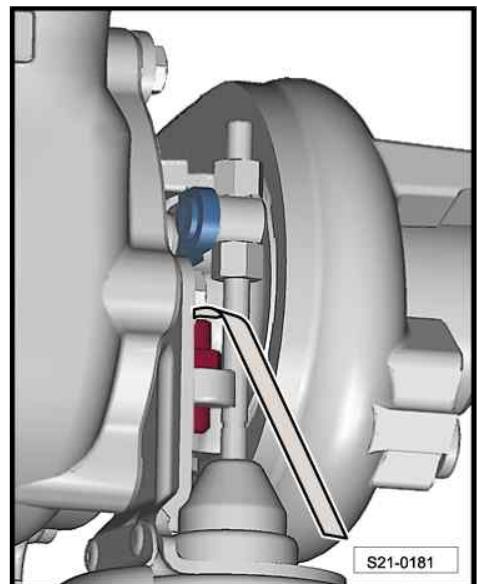


- Position the feeler gauge of 0.05 mm, as shown in the figure, between the adjusting lever and the adjusting screw.
- Now operate the hand vacuum pump - VAS 6213- until the feeler gauge of 0.05 mm is jammed between the adjusting lever and the adjusting screw.
- While doing so, read the pressure on the turbocharger tester - V.A.G1397 A- .

Specified value: the noted "value" 1 ± 20 mbar.

The value is o.k.

- Use seal paint from the spare part set to seal the connection of the control rod/fixing nut.



- Press the lock washer on the control rod by hand and turn it 90° in -direction of arrow-.

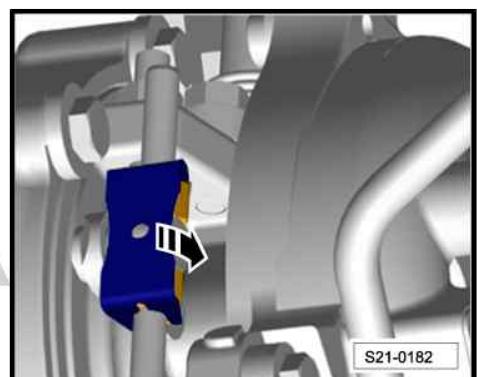
The value is not o.k.

- Repeat the adjustment procedure [⇒ page 344](#) .

Complete installation

Further installation occurs in reverse order for removal, while paying attention to the following:

- Start engine and erase event memory ⇒ Vehicle diagnostic tester.



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23 – Mixture preparation - injection

1 Repairing Diesel Direct Injection system

- ⇒ “1.1 Overview of installation locations (Octavia II, Superb II)”,
page 348
- ⇒ “1.2 Overview of installation locations (Fabia II, Roomster)”,
page 355
- ⇒ “1.3 Intake manifold - Summary of components”, page 360
- ⇒ “1.4 Summary of components - air filter (Octavia II, Superb II)”,
page 364
- ⇒ “1.5 Summary of components - air filter (Fabia II, Roomster)”,
page 364
- ⇒ “1.6 Removing and installing air filter (Fabia II, Roomster)”,
page 367
- ⇒ “1.7 Repairing the unit injectors - Summary of components”,
page 367
- ⇒ “1.8 Removing and installing O-rings for unit injector”,
page 368
- ⇒ “1.9 Removing and installing the unit injector”, page 370
- ⇒ “1.10 Removing and installing engine speed sender G28 (Octavia II, Superb II)”, page 373

1.1 Overview of installation locations (Octavia II, Superb II)

- ⇒ “1.1.1 Summary of components for engine with identification characters BJB”, page 348
- ⇒ “1.1.2 Summary of components for engine with identification characters BXE, BKC”, page 351
- ⇒ “1.1.3 Summary of components for engine with identification characters BLS”, page 353

1.1.1 Summary of components for engine with identification characters BJB

The components A through H are not represented in the overview figure.





A - Diesel direct injection system relay - J322-

- on the additional relay carrier under the E-box (R4)

B - Automatic glow period control unit - J179-

- on the additional relay carrier under the E-box (R2)

C - Fuel pump relay - J17-

- on the additional relay carrier under the dash panel (D4.1)

D - Accelerator pedal position sender - G79- and accelerator pedal position sender 2 - G185-

- in the footwell in the accelerator pedal module

E - Brake light switch - F- and brake pedal switch - F47-

- in footwell on the brake pedal

F - Clutch position sender - G476-

- in the engine compartment on the slave cylinder

G - Engine speed sender - G28-

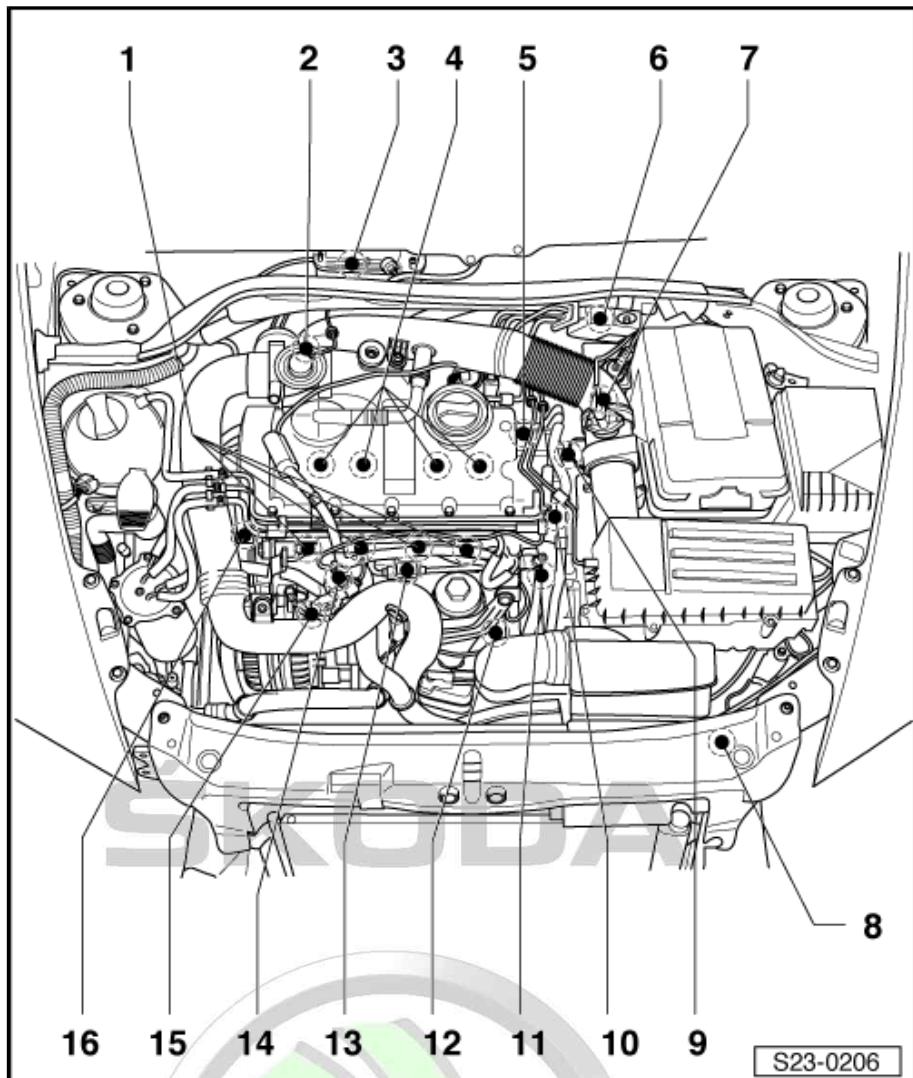
- at cylinder block behind flywheel
- removing and installing
[⇒ "1.10 Removing and installing engine speed sender G28 \(Octavia II, Superb II\)", page 373](#)

H - Oil level and oil temperature sender - G266-

- at the engine oil pan

1 - Glow plugs 1 - Q11- , 2 - Q12- , 3 - Q13- and 4 - Q14-

- removing and installing:
 - ◆ made of metal ⇒ ["1.1 Removing and installing metal glow plugs", page 427](#)
 - ◆ made of ceramic ⇒ ["1.2 Removing and installing ceramic glow plugs", page 427](#)
 - test:
 - ◆ made of metal ⇒ ["1.3 Checking metal glow plugs", page 428](#)
 - ◆ made of ceramic ⇒ ["1.4 Inspecting ceramic glow plugs", page 429](#)



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2 - Inlet connection

- with mechanical exhaust gas recirculation valve
- with an intake manifold flap

3 - Engine control unit - J248-

- with altitude sender -F96-

4 - Unit injectors -N240- , -N241- , -N242- and -N243-

- under cylinder head cover
- removing and installing, setting
[⇒ "1.7 Repairing the unit injectors - Summary of components", page 367](#)

5 - Coolant temperature sender - G62-

6 - Valve block

- Component parts of the valve block are:
- ◆ Changeover valve for intake manifold flap -N239-
- ◆ Exhaust gas return valve -N18-
- ◆ Solenoid valve for charge pressure control -N75-

7 - Air mass meter - G70-

8 - Coolant temperature sender at radiator outlet - G83-

9 - Tandem pump

10 - Connector

- Central plug connection for unit injectors -N240- , -N241- , -N242- and -N243- .

11 - Fuel temperature sender - G81-

12 - Connector

- for engine speed sender -G28-

13 - Connector

- for hall sender -G40-

14 - Vacuum reservoir

15 - Charge pressure sender - G31- with intake air temperature sender -G42-

16 - Hall sender - G40-

- under top toothed belt guard

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1.1.2 Summary of components for engine with identification characters BXE, BKC

The components A through H are not represented in the overview figure.

A - Diesel direct injection system relay - J322-

- on the additional relay carrier under the E-box (R4)

B - Automatic glow period control unit - J179-

- on the additional relay carrier under the E-box (R2)

C - Fuel pump relay - J17-

- on the additional relay carrier under the dash panel (D4.1)

D - Accelerator pedal position sender - G79- and accelerator pedal position sender 2 - G185-

- in the footwell in the accelerator pedal module

E - Brake light switch - F- and brake pedal switch - F47-

- in footwell on the brake pedal

F - Clutch position sender - G476-

- in the engine compartment on the slave cylinder

G - Engine speed sender - G28-

- at cylinder block behind flywheel
- removing and installing [⇒ "1.10 Removing and installing engine speed sender G28 \(Octavia II, Superb II\)", page 373](#)

H - Oil level and oil temperature sender - G266-

- at the engine oil pan

1 - Glow plugs 1 - Q11- , 2 - Q12- , 3 - Q13- and 4 - Q14-

- Tightening torque 15 Nm
- removing and installing [⇒ "1.1 Removing and installing metal glow plugs", page 427](#)
- checking [⇒ "1.3 Checking metal glow plugs", page 428](#)

2 - Intake manifold flap motor - V157-

- removing and installing [⇒ "1.3.2 Summary of components for engine with identification characters BXE, BKC, AXR, BSW", page 362](#)

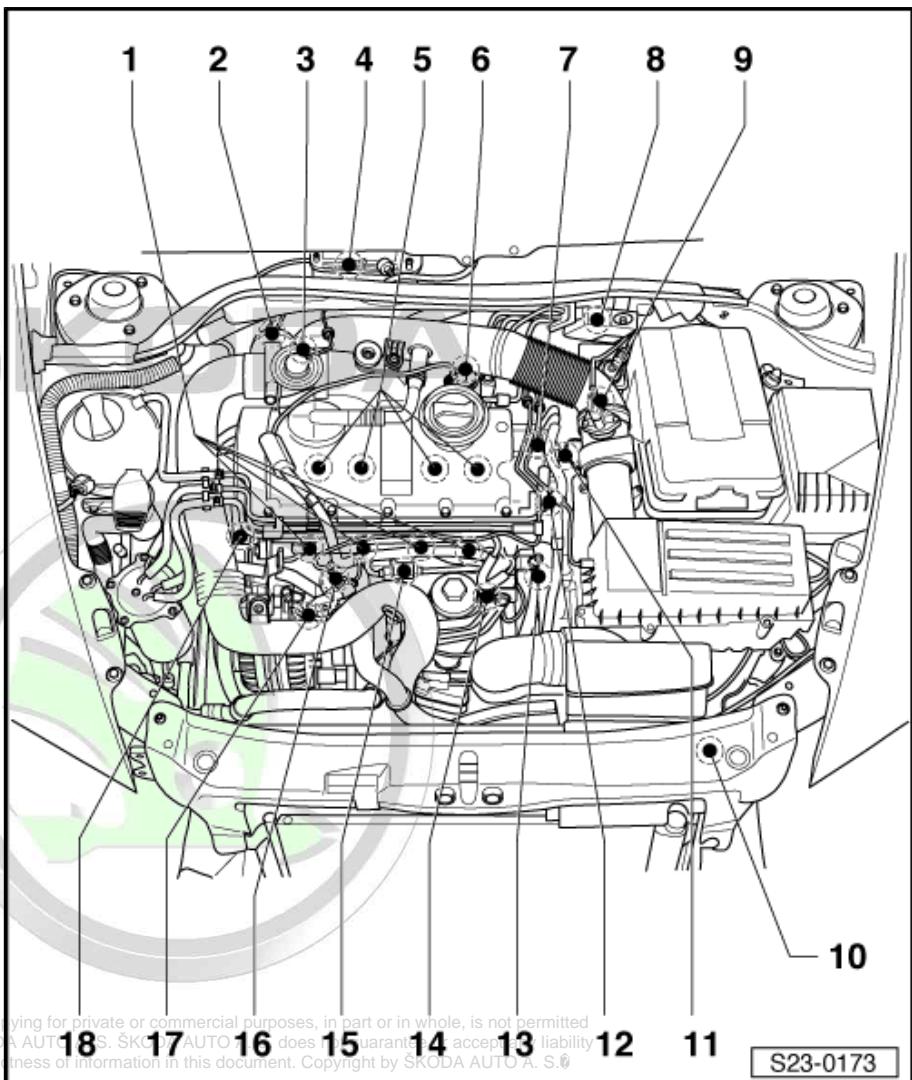
3 - Inlet connection

- with mechanical exhaust gas recirculation valve

4 - Engine control unit - J248-

- with altitude sender -F96-

removing and installing [⇒ "2.1 Removing and installing engine control unit \(Superb II\)", page 375](#)



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5 - Unit injectors -N240-, -N241-, -N242- and -N243-

- under cylinder head cover
- removing and installing [⇒ “1.9 Removing and installing the unit injector”, page 370](#)

6 - Vacuum setting element

- for change-over flap of radiator for exhaust gas recirculation
- checking
[⇒ “2.7 Checking the change-over flap of the radiator for exhaust gas recirculation for engine with engine identification characters BKC, BXE \(Octavia II, Superb II\)”, page 424](#).

7 - Coolant temperature sender - G62-

8 - Valve block

- Component parts of the valve block are:
- ◆ Changeover valve for radiator of exhaust gas recirculation -N345-
- ◆ Exhaust gas return valve -N18-
- ◆ Solenoid valve for charge pressure control -N75-

9 - Air mass meter - G70-

10 - Coolant temperature sender at radiator outlet - G83-

11 - Tandem pump

12 - Connector

- Central plug connection for unit injectors -N240-, -N241-, -N242- and -N243- .

13 - Fuel temperature sender - G81-

14 - Connector

- for engine speed sender -G28-

15 - Connector

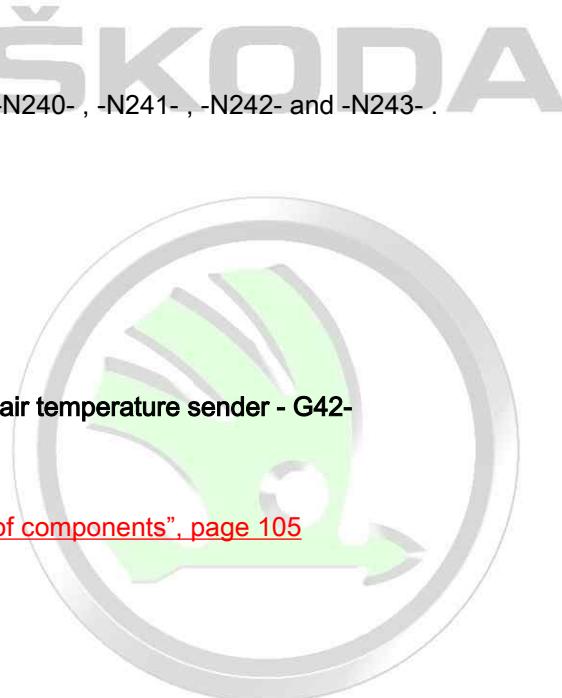
- for hall sender -G40-

16 - Vacuum reservoir

17 - Charge pressure sender - G31- with intake air temperature sender - G42-

18 - Hall sender - G40-

- under top toothed belt guard
- removing and installing [⇒ “1.1 Summary of components”, page 105](#)



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1.1.3 Summary of components for engine with identification characters BLS

The components A through G are not represented in the overview figure.

A - Warning light for engine electronics - K83-

- on the dash panel insert

B - Accelerator pedal position sender - G79- with accelerator pedal position sender 2 - G185-

- in footwell on the accelerator pedal

C - Brake light switch - F- and brake pedal switch - F47-

- in footwell on the brake pedal

D - Fuel pump relay - J17-

- on relay carrier

E - Clutch position sender - G476-

- at master cylinder

F - Automatic glow period control unit - J179-

- below E-box in the engine compartment

G - Relay and fuse carrier

- with voltage supply relay of tml. 30 -J317-
- with voltage supply relay of tml. 15 -J329-
- E-box in the engine compartment

1 - Intake manifold flap motor - V157-

2 - Exhaust gas temperature sender 3 - G495- (Temperature sender downstream particle filter - G527-)

- Orange plug

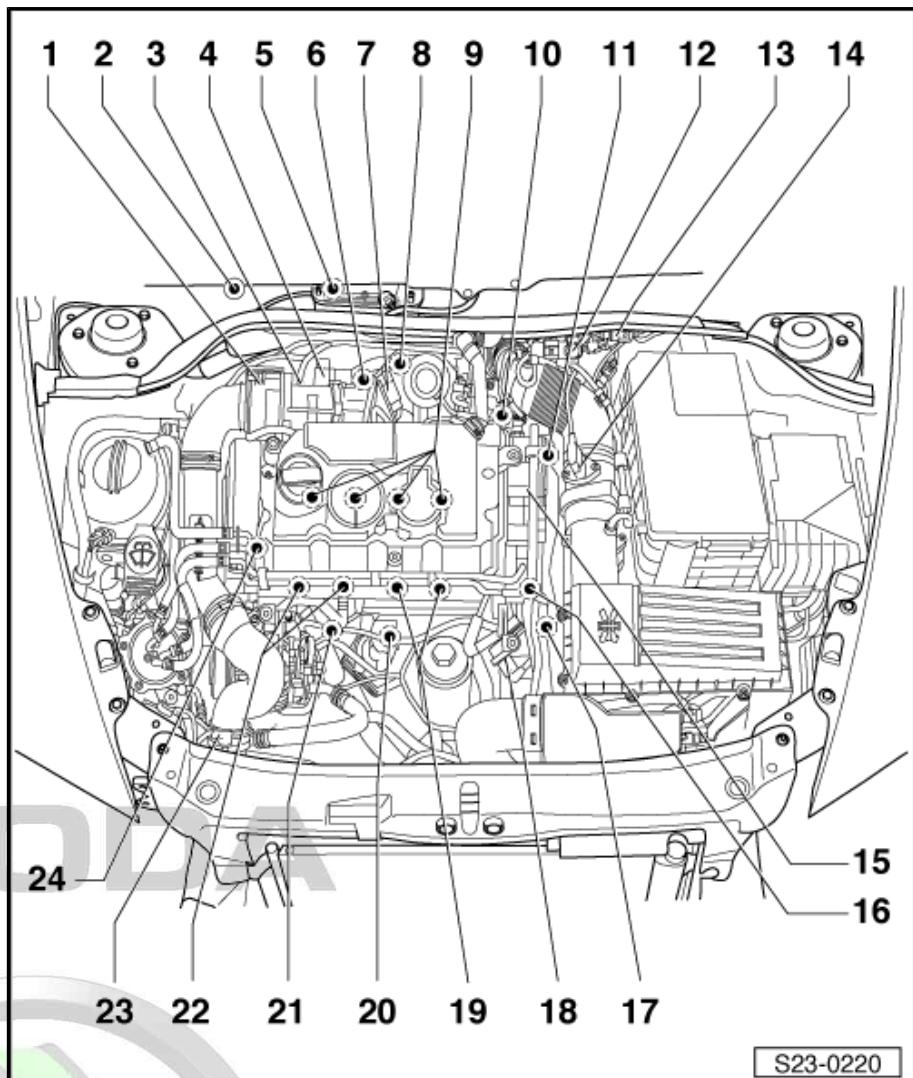
3 - Lambda probe - G39- with heating for lambda probe -Z19-

4 - Exhaust gas recirculation valve - N18- with EGR potentiometer -G212- and EGR control motor -V338-

5 - Engine control unit - J248-

- with altitude sender -F96-

removing and installing [⇒ “2.1 Removing and installing engine control unit \(Superb II\)”, page 375](#)



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6 - Exhaust gas temperature sender 2 - G448- (Temperature sender upstream particle filter - G506-)

- Brown plug

7 - Exhaust gas pressure sensor 1 - G450-

8 - Exhaust gas temperature sender 1 - G235- (Temperature sender upstream turbocharger - G507-)

- black plug

9 - The unit injectors

- Unit injector solenoid valve cyl. 1 - N240-
- Unit injector solenoid valve cyl. 2 - N241-
- Unit injector solenoid valve cyl. 3 - N242-
- Unit injector solenoid valve cyl. 4 - N243-
- Removing and installing unit injectors [⇒ "1.9 Removing and installing the unit injector", page 370](#)

10 - Changeover valve for radiator of exhaust gas recirculation - N345-

11 - Coolant temperature sender - G62-

12 - Solenoid valve for charge pressure control - N75-

13 - Connector

- at the front wall on the left
- Summary of components [⇒ Fig. "Summary of components - plug on the front wall" , page 355](#)

14 - Air mass meter - G70-

15 - Tandem pump

16 - Connector

- central for pump-nozzle units

17 - Engine speed sender - G28-

- removing and installing
[⇒ "1.10 Removing and installing engine speed sender G28 \(Octavia II, Superb II\)", page 373](#)

18 - Fuel temperature sender - G81-

19 - Glow plugs

- Tightening torque 12 Nm
- Glow plug 3 - Q12-
- Glow plug 4 - Q13-
- removing and installing [⇒ "1.2 Removing and installing ceramic glow plugs", page 427](#)
- checking [⇒ "1.4 Inspecting ceramic glow plugs", page 429](#)

20 - 3-pin plug

for hall sender - G40-

21 - Coolant temperature sender at radiator outlet - G83-

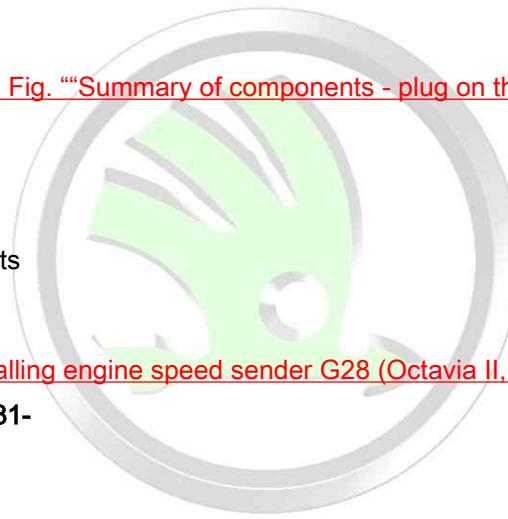
22 - Glow plugs

- Tightening torque 12 Nm
- Glow plug 1 - Q10-
- Glow plug 2 - Q11-
- removing and installing [⇒ "1.2 Removing and installing ceramic glow plugs", page 427](#)
- checking [⇒ "1.4 Inspecting ceramic glow plugs", page 429](#)

23 - Charge pressure sender - G31- with intake air temperature sender -G42-

24 - Hall sender - G40-

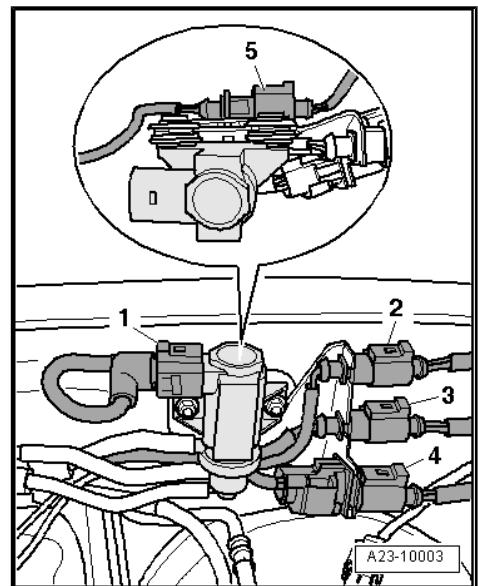
- for camshaft position





Summary of components - plug on the front wall

- 1 - Solenoid valve for charge pressure control - N75-
- 2 - Plug (orange) for exhaust gas temperature sender 3 - G495- (temperature sender downstream particle filter - G527-)
- 3 - Plug (black) for exhaust gas temperature sender 1 - G235- (temperature sender upstream of turbocharger - G507-)
- 4 - Plug (black) for lambda probe - G39- with heating for lambda probe - Z19-
- 5 - Plug (brown) for exhaust gas temperature sender 2 - G448- (temperature sender upstream of particle filter - G506-)



1.2 Overview of installation locations (Fabia II, Roomster)

⇒ “1.2.1 Summary of components for engine with identification characters AXR, BSW”, page 355

⇒ “1.2.2 Summary of components for engine with identification characters BLS”, page 358

1.2.1 Summary of components for engine with identification characters AXR, BSW

The components A through H are not represented in the overview figure.

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A - Diesel direct injection system relay - J322-

- on relay carrier
[⇒ Fig. “Relay carrier”, page 357](#)

B - Glow plug relay - J52-

- on relay carrier
[⇒ Fig. “Relay carrier”, page 357](#)

C - Low heat output relay - J359-

- on relay carrier
[⇒ Fig. “Relay carrier”, page 357](#)

D - High heat output relay - J360-

- on relay carrier
[⇒ Fig. “Relay carrier”, page 357](#)

E - Fuel pump relay - J17-

- on relay carrier
[⇒ Fig. “Relay carrier”, page 357](#)

F - Accelerator pedal position sender - G79-

- in footwell on the accelerator pedal
[⇒ Fig. “Components in footwell”, page 357](#)

G - Brake light switch - F- and brake pedal switch - F47-

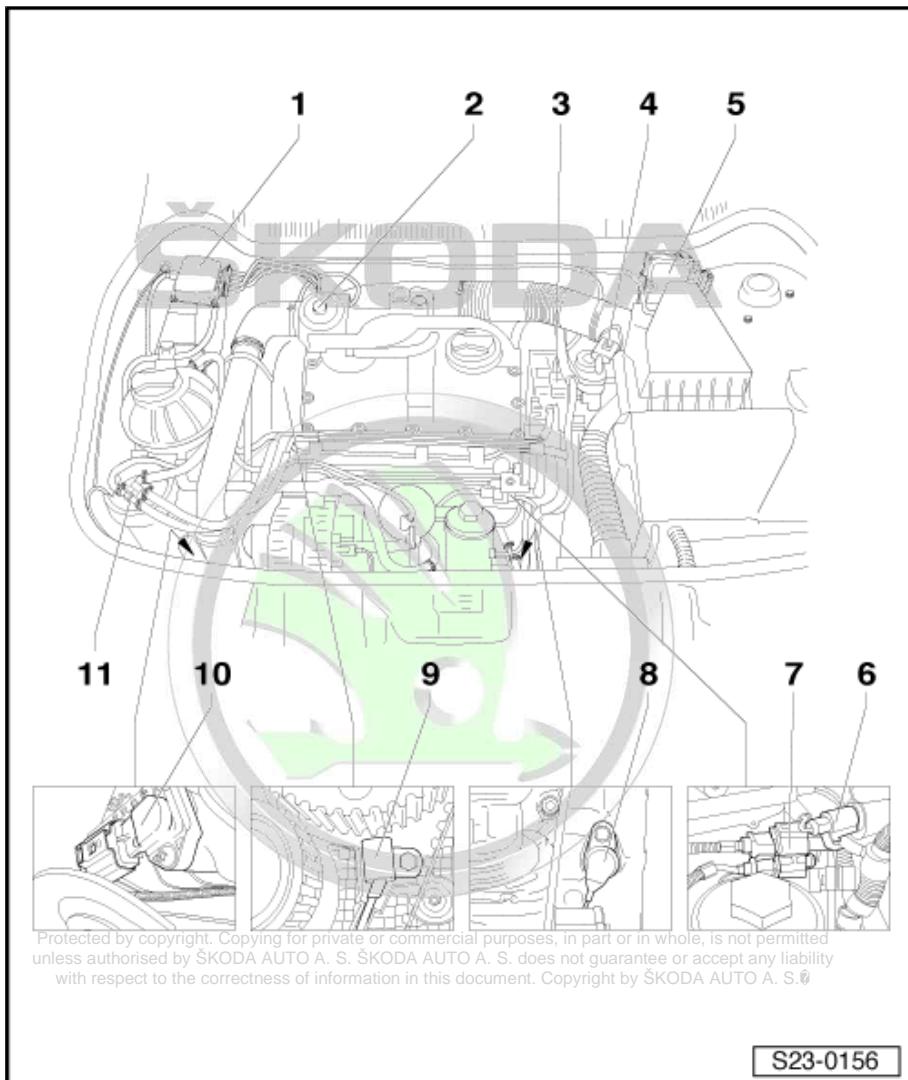
- in footwell on the brake pedal
[⇒ Fig. “Components in footwell”, page 357](#)

H - Clutch pedal switch - F36-

- in footwell on the clutch pedal [⇒ Fig. “Components in footwell”, page 357](#)

1 - Valve block

- Component parts of the valve block are:
- ◆ Exhaust gas return valve - N18-
- ◆ Solenoid valve for charge pressure control - N75-





2 - Mechanical exhaust gas recirculation valve and intake manifold flap motor - V157-

3 - Coolant temperature sender - G62-

4 - Air mass meter - G70-

5 - Engine control unit - J623-

6 - Fuel temperature sender - G81-

7 - Connector

- 3-pin, grey
- for engine speed sender - G28-
- 3-pin, black
- for camshaft position sensor - G40-

8 - Engine speed sender - G28-

- Tightening torque: 5 Nm

9 - Camshaft position sensor - G40-

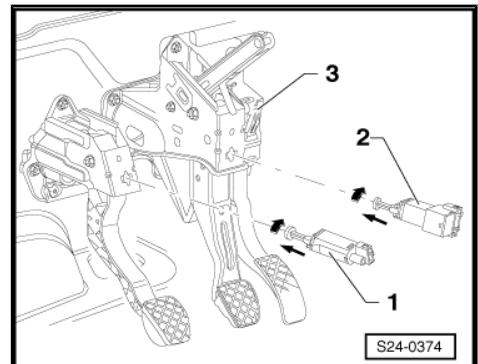
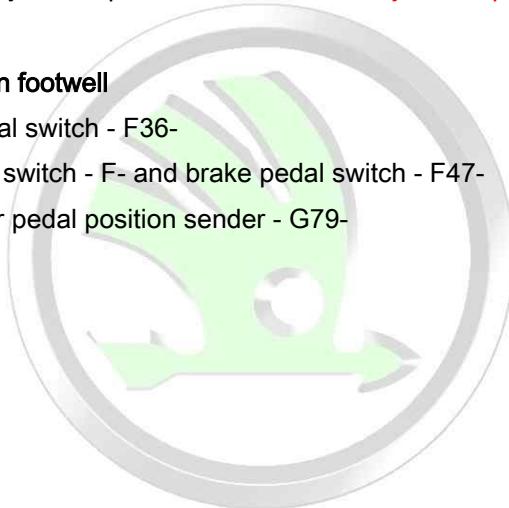
10 - Intake manifold pressure sender - G71- with intake manifold temperature sender - G72-

11 - Fuel filter

- Summary of components ⇒ “[1.8 Summary of components - fuel filter \(Fabia II, Roomster\)](#)”, page 244

Components in footwell

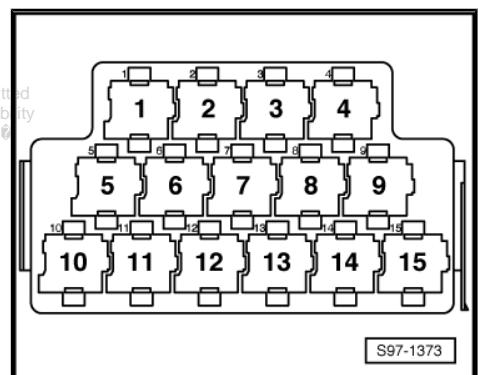
- 1 - Clutch pedal switch - F36-
- 2 - Brake light switch - F- and brake pedal switch - F47-
- 3 - Accelerator pedal position sender - G79-



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Relay carrier

- 7 - Low heat output relay - J359-
- 8 - High heat output relay - J360-
- 9 - Glow plug relay - J52-
- 13 - Diesel direct injection system relay - J322-
- 14 - Fuel pump relay - J17-



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1.2.2 Summary of components for engine with identification characters BLS

The components A through H are not represented in the overview figure.

A - Diesel direct injection system relay - J322-

- on relay carrier
[⇒ Fig. "Relay carrier"](#), page 360

B - Automatic glow period control unit - J179-

- in engine compartment on the battery

C - Low heat output relay - J359-

- on relay carrier
[⇒ Fig. "Relay carrier"](#), page 360

D - High heat output relay - J360-

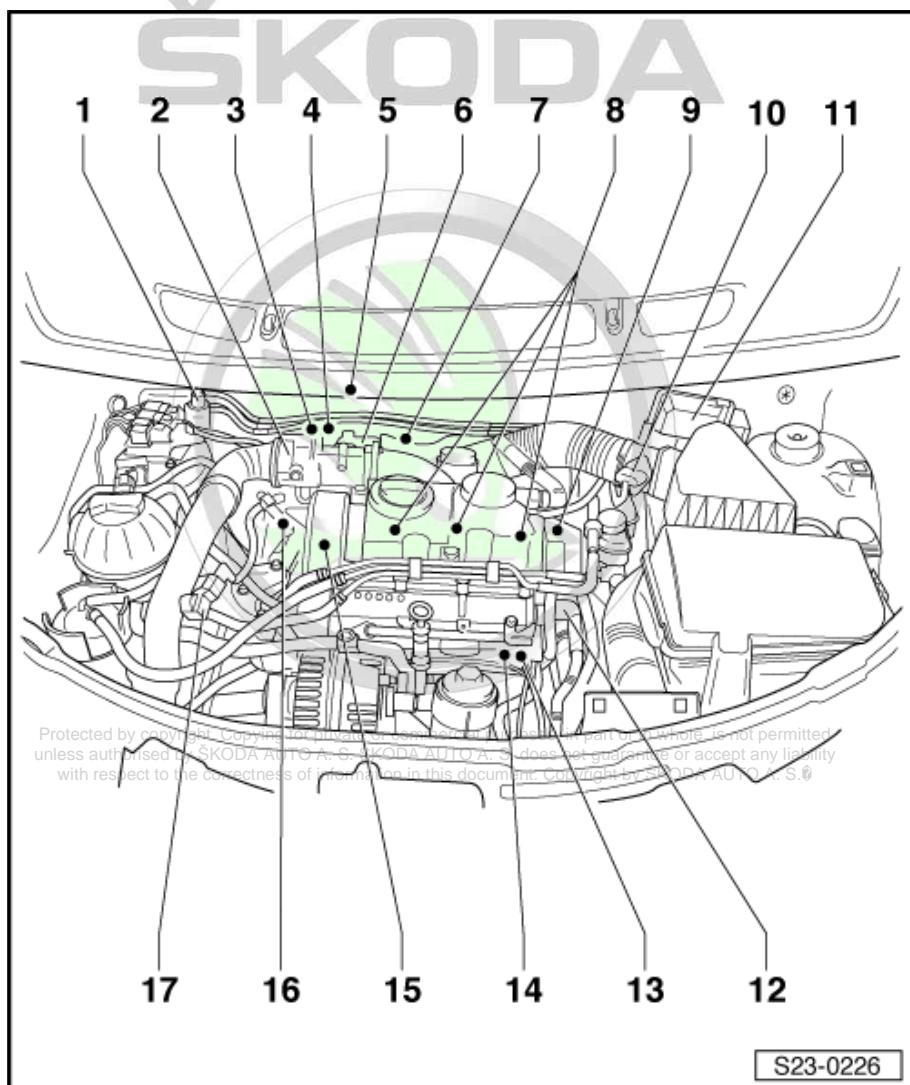
- on relay carrier
[⇒ Fig. "Relay carrier"](#), page 360

E - Fuel pump relay - J17-

- on relay carrier
[⇒ Fig. "Relay carrier"](#), page 360

F - Accelerator pedal position sender - G79- with accelerator pedal position sender 2 - G185-

- in footwell on the accelerator pedal (both senders integrated into a housing)
[⇒ Fig. "Components in](#)





[footwell"" , page 359](#)

G - Brake light switch - F- and brake pedal switch - F47-

- in footwell on the brake pedal [⇒ Fig. "Components in footwell"" , page 359](#)

H - Clutch pedal switch - F36-

- in footwell on the clutch pedal [⇒ Fig. "Components in footwell"" , page 359](#)

1 - Solenoid valve for charge pressure control - N75-

2 - Intake manifold flap motor - V157-

3 - Lambda probe - G39- with heating for lambda probe -Z19-

4 - Exhaust gas temperature sender 2 - G448- (Temperature sender upstream particle filter - G506-)

5 - Exhaust gas temperature sender 3 - G495- (Temperature sender downstream particle filter - G527-)

6 - Exhaust gas recirculation valve - N18- with EGR potentiometer - G212- and EGR control motor - V338-

7 - Exhaust gas temperature sender 1 - G235- (Temperature sender upstream turbocharger - G507-)

8 - The unit injectors

- Unit injector solenoid valve cyl. 1 - N240-
- Unit injector solenoid valve cyl. 2 - N241-
- Unit injector solenoid valve cyl. 3 - N242-
- Removing and installing unit injectors [⇒ "1.9 Removing and installing the unit injector", page 370](#)

9 - Coolant temperature sender - G62-

10 - Air mass meter - G70-

11 - Engine control unit - J623-

12 - Multipin plug connection

- central for pump-nozzle units

13 - Fuel temperature sender - G81-

14 - Engine speed sender - G28-

15 - Hall sender - G40-

- for camshaft position

16 - Exhaust gas pressure sensor 1 - G450-

17 - Charge pressure sender - G31- with intake air temperature sender - G42-

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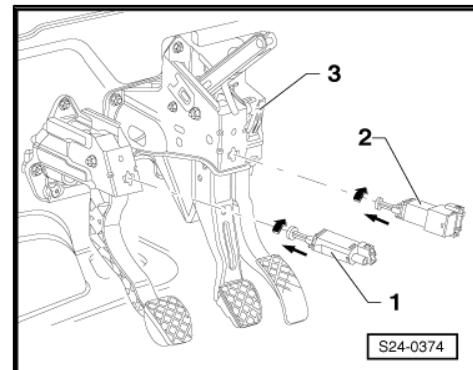
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Components in footwell

1 - Clutch pedal switch - F36-

2 - Brake light switch - F- and brake pedal switch - F47-

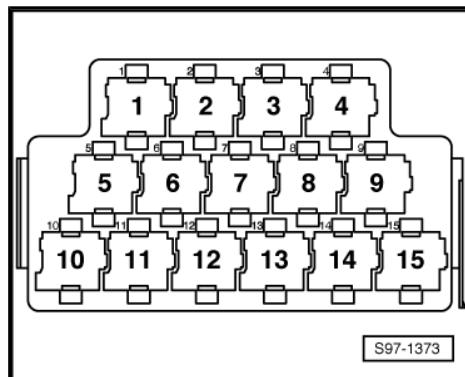
3 - Accelerator pedal position sender - G79-





Relay carrier

- 7 - Low heat output relay - J359-
- 8 - High heat output relay - J360-
- 13 - Diesel direct injection system relay - J322-
- 14 - Fuel pump relay - J17-



1.3 Intake manifold - Summary of components

⇒ “1.3.1 Summary of components for engine with engine identification characters BJB (Octavia II)”, page 360

⇒ “1.3.2 Summary of components for engine with identification characters BXE, BKC, AXR, BSW”, page 362

⇒ “1.3.3 Summary of components for engine with identification characters BLS”, page 363

1.3.1 Summary of components for engine with engine identification characters BJB (Octavia II)

The intake manifold flap closes for about 3 seconds after switching off the engine and then opens again. This reduces the switch-off impact.



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1 - Intake manifold

2 - O-ring

- Replace after disassembly

3 - Inlet connection

- with mechanical exhaust gas recirculation valve and intake manifold flap

4 - Screw

- 10 Nm

5 - Gasket

- Replace after disassembly

6 - Connecting pipe

- from exhaust manifold

7 - Screw

- 10 Nm

8 - Support

9 - Vacuum setting element

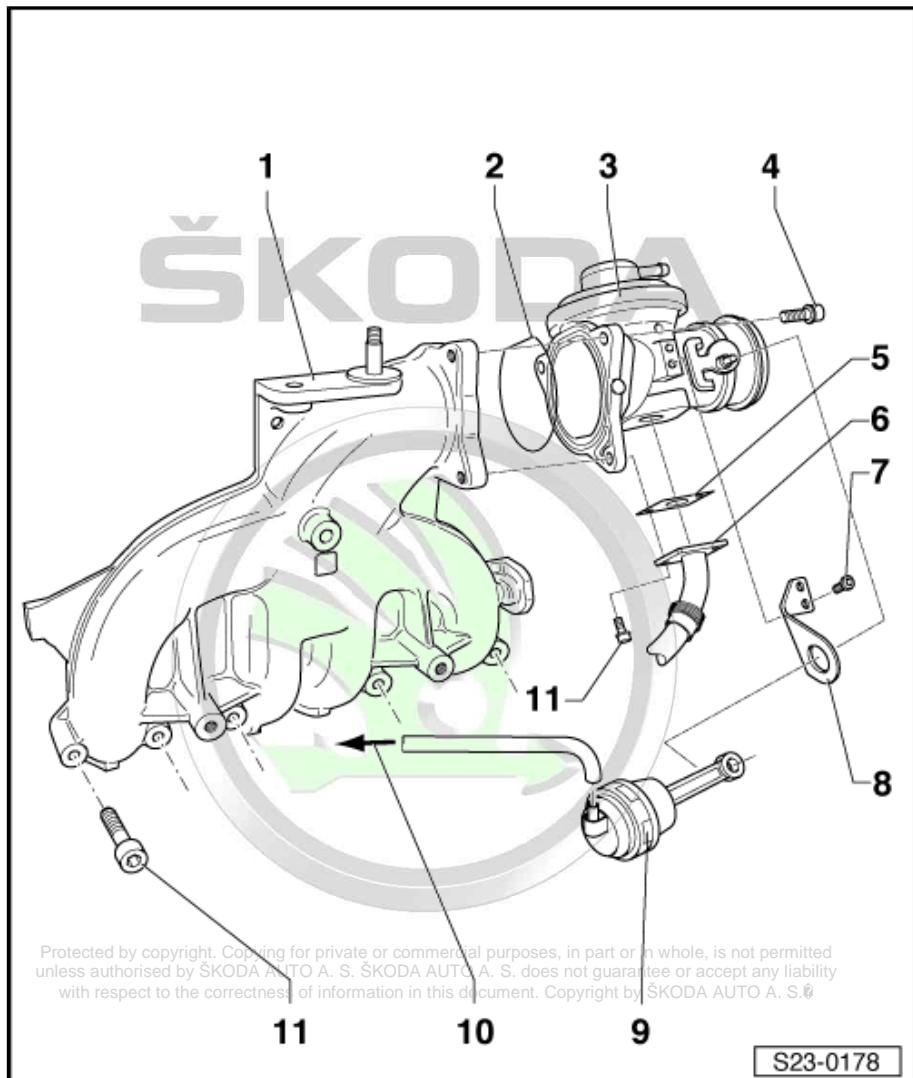
- for intake manifold flap

10 - to valve block

- Outlet of the change-over valve for intake manifold flap -N239-

11 - Screw

- 22 Nm





1.3.2 Summary of components for engine with identification characters BXE, BKC, AXR, BSW

1 - Intake manifold

2 - O-ring

- Replace after disassembly

3 - Inlet connection

- with mechanical exhaust gas recirculation valve

4 - Screw

- 10 Nm

5 - Intake manifold flap motor - V157-

6 - Connecting pipe

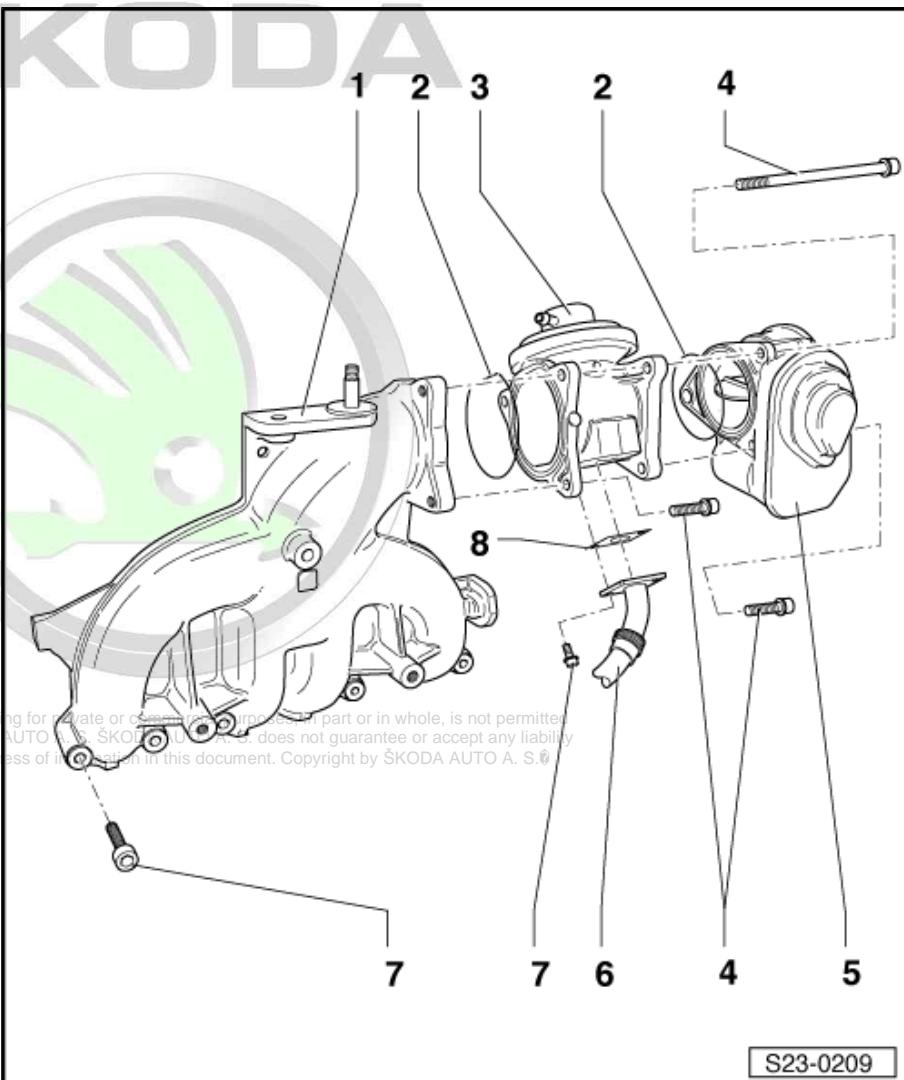
- from flap of radiator for exhaust gas recirculation

7 - Screw

- 22 Nm

8 - Gasket

- Replace after disassembly





1.3.3 Summary of components for engine with identification characters BLS



- ◆ The actuation of the exhaust gas recirculation system is performed by the engine control unit -J248- for the EGR valve -N18- with EGR potentiometer -G212- and EGR control motor -V338-.
- ◆ The mechanical exhaust gas recirculation valve with cone-shaped valve plunger makes it possible to achieve different opening cross-sections at different opening strokes.
- ◆ Always replace self-locking nuts.

1 - Gasket

- Replace after disassembly

2 - Intake manifold

3 - Sealing ring

- Replace after disassembly

4 - Supports

5 - Intake manifold flap motor - V157-

6 - from charge-air cooler

7 - Screw

- 10 Nm

8 - Exhaust gas recirculation valve - N18- with EGR potentiometer -G212- and EGR control motor -V338-

9 - Gasket

- Replace after disassembly

10 - Radiator

- for exhaust gas recirculation

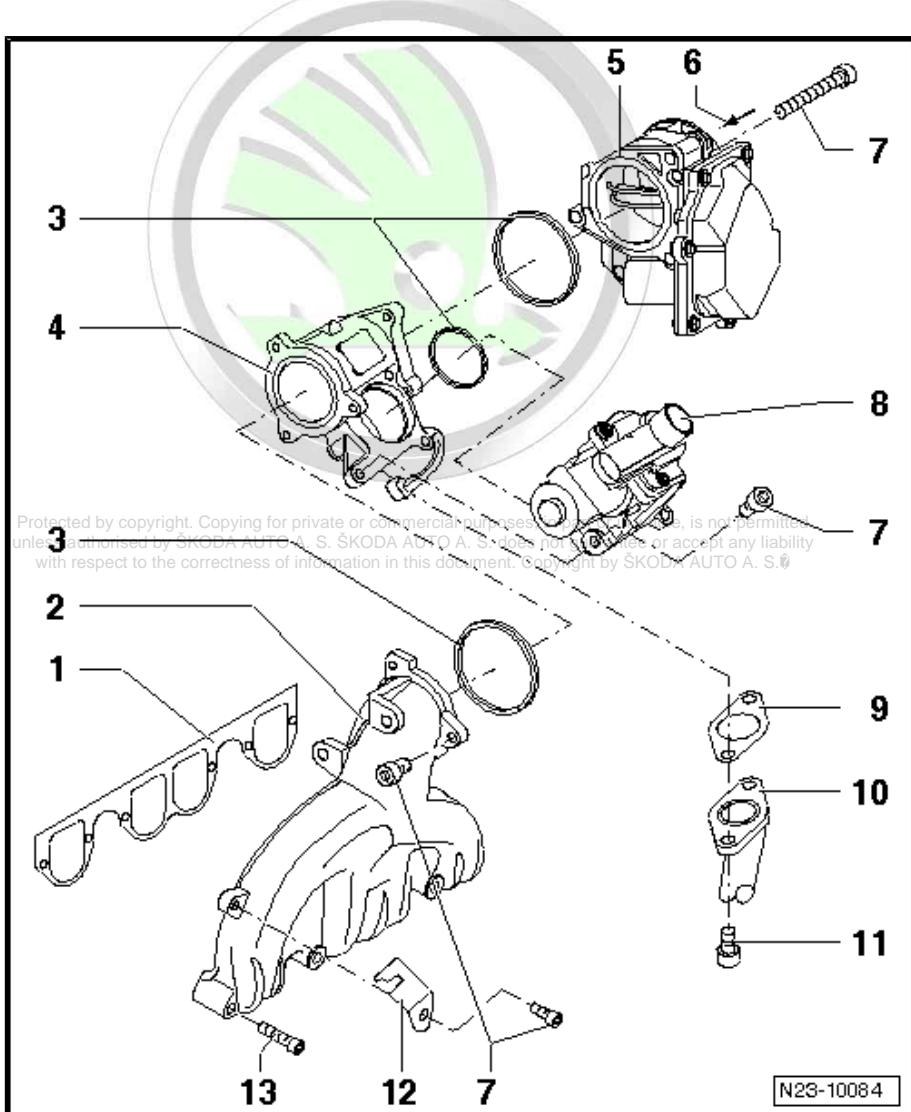
11 - Screw

- 22 Nm

12 - Support

13 - Screw

- 22 Nm





1.4 Summary of components - air filter (Octavia II, Superb II)

1 - Air intake hose

- to exhaust gas turbo-charger

2 - Air mass meter - G70-

3 - O-ring

- replace if damaged

4 - Screw

- 2 Nm

5 - Air filter top part

- if during repairs the air filter housing is opened (except for air filter element change), it should be entered in the Service Schedule (change interval for air filter element is shortened)

6 - Bleeder hose

- of valve block

7 - Filter element

8 - Air deflector

- from lock carrier

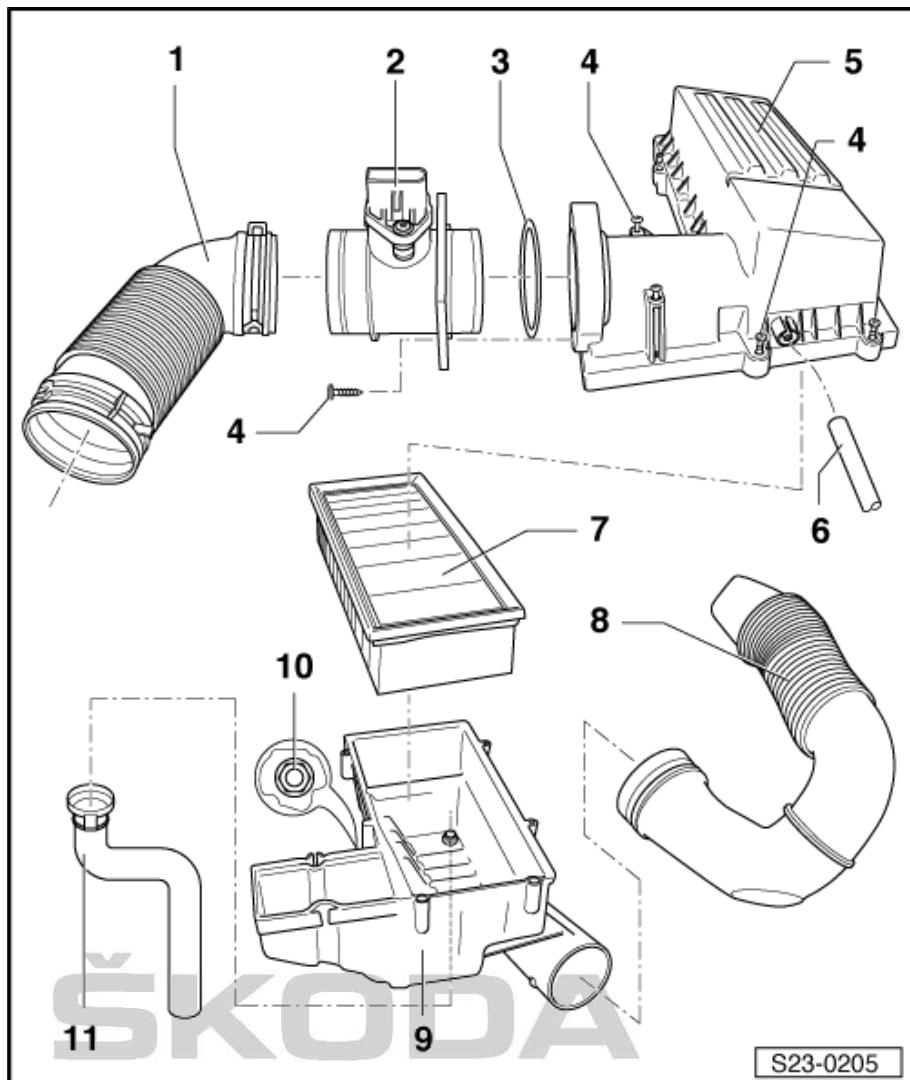
9 - Air filter bottom part

- with supports for drain pipe

10 - Screw

- 8 Nm

11 - Drain pipe



1.5 Summary of components - air filter (Fabia II, Roomster)

⇒ “1.5.1 Summary of components for engine with identification characters AXR, BSW”, page 365

⇒ “1.5.2 Summary of components for engine with identification characters BLS”, page 366



1.5.1 Summary of components for engine with identification characters AXR, BSW

1 - Air intake hose

- to exhaust gas turbocharger
- pay attention to correct installation position

2 - Spring strap clamp

3 - Screw

- 2 Nm

4 - Air filter top part

5 - Filter element

6 - Air filter bottom part

7 - Screw

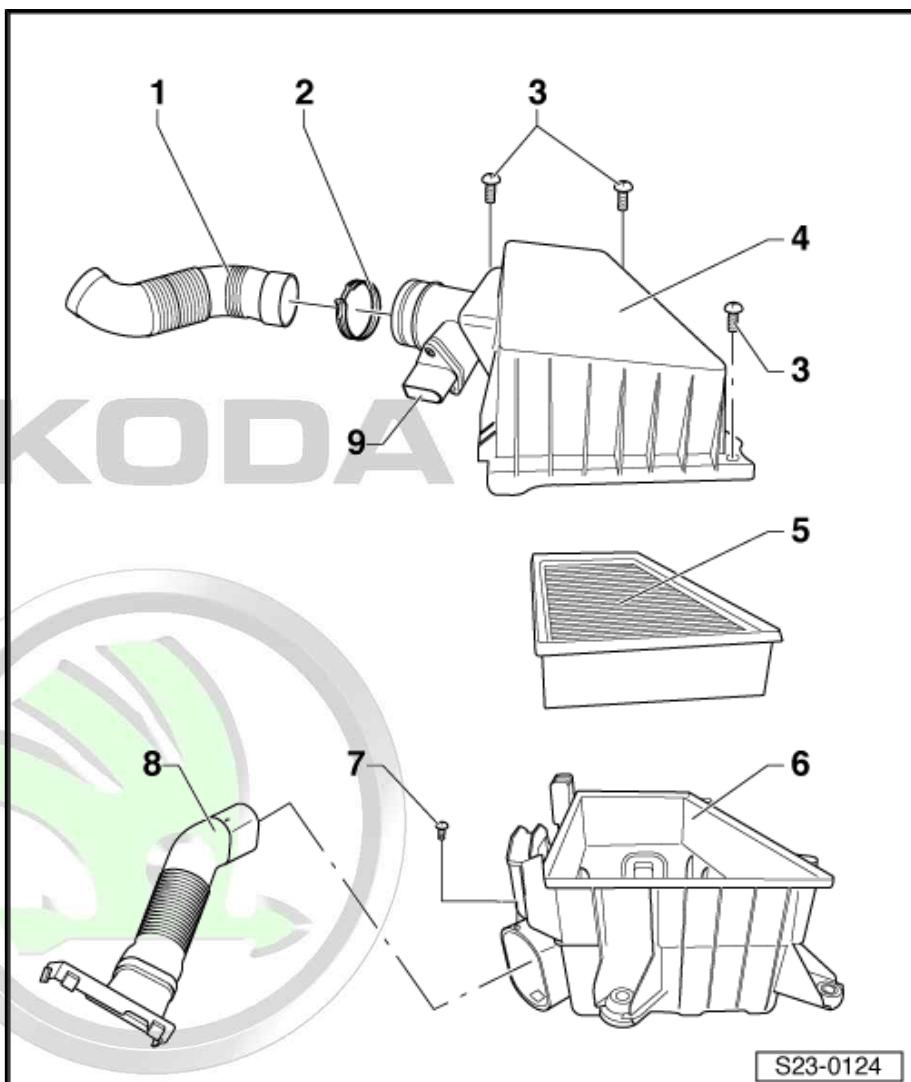
- 2 Nm

8 - Air deflector

- from lock carrier

9 - Air mass meter - G70-

- checking ⇒ Vehicle diagnostic tester.



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1.5.2 Summary of components for engine with identification characters BLS

1 - Air mass meter - G70-

- checking ⇒ Vehicle diagnostic tester.

2 - Screw

- 2 Nm

3 - O-ring

- Replace after disassembly

4 - Vacuum hose

5 - Screw

- 2 Nm

6 - Air filter top part

7 - Filter element

8 - Air filter bottom part

9 - Screw

- 10 Nm

10 - Rubber grommet

11 - Screw

- 2 Nm

12 - Rubber grommet

13 - Air deflector

- to the lock carrier

14 - Rubber grommet

15 - Air intake hose

- to exhaust gas turbocharger

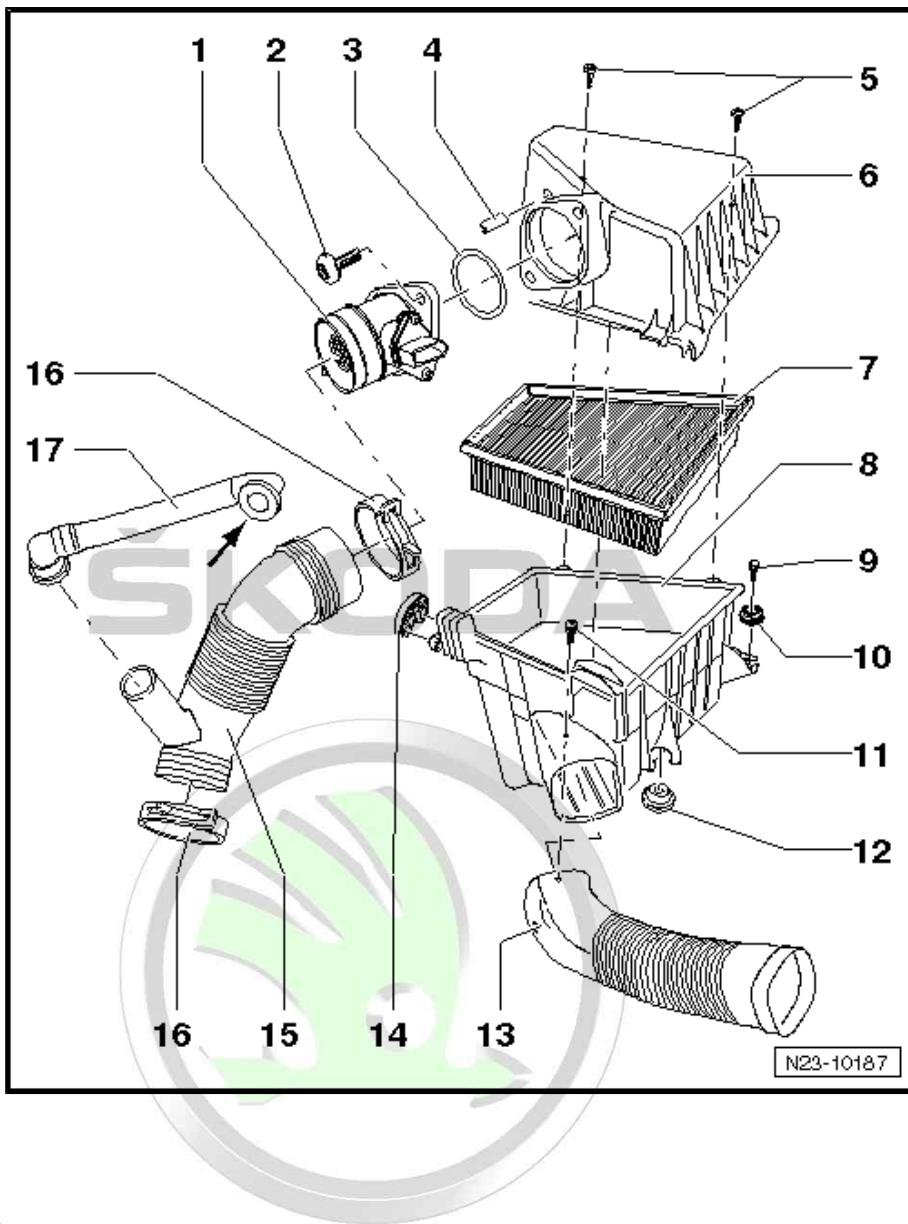
- for nordic countries with heating

16 - Spring strap clamp

17 - Connecting pipe

- from cylinder head cover

- for crankcase ventilation



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1.6 Removing and installing air filter (Fabia II, Roomster)

Removing

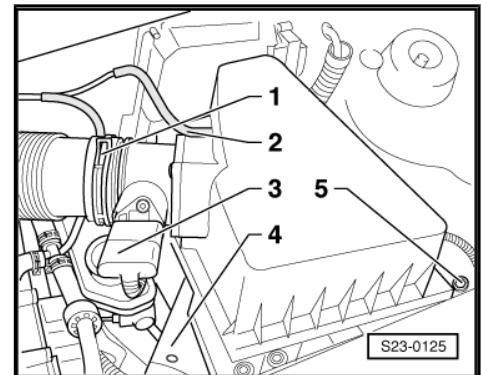
- Loosen spring strap clamp -1- on the air guide hose and remove the hose from the air filter.
- Disconnect bleeder hose -2- and the plug on the air mass meter -3-.
- Remove the air deflector -4- from the air filter.
- Unscrew the fixing screw -5- from the air filter.
- Carefully remove air filter from the top.

Install



Note

Pay attention to correct positioning of the stop buffer on the bottom part of the air filter (front and rear side).



1.7

Repairing the unit injectors - Summary of components

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**1 - Screw**

- Replace after disassembly
- 20 Nm + 90°

2 - Valve-lever shaft

- with valve levers

3 - Safety nut

- 30 Nm

4 - Adjusting screw

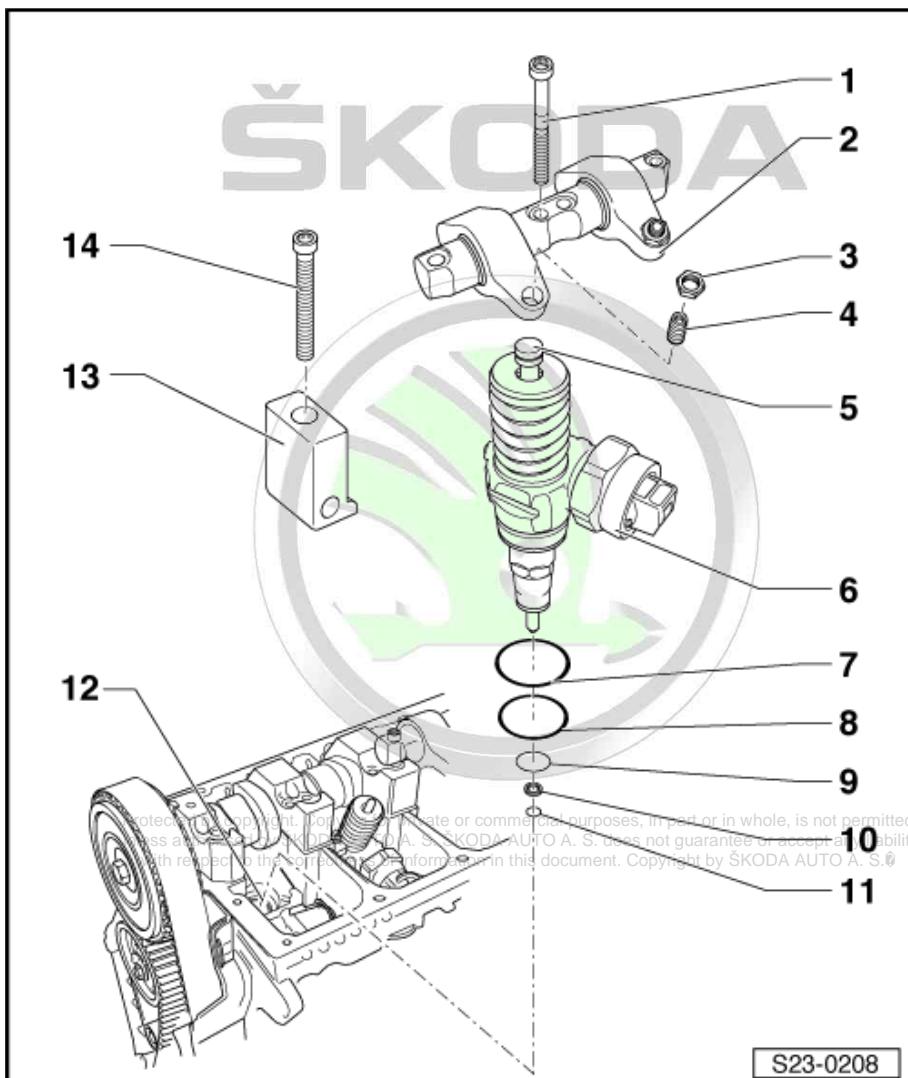
- replace when installing a new unit injector and where wear marks are visible
- Grease the contact surface of the unit injector to the ball pin using grease -G 000 100-

5 - Ball pin

- Replace after disassembly

6 - The unit injector

- Check ball pins for wear marks and replace if necessary
- Grease the contact surface to the adjusting screw using grease -G 000 100-
- removing and installing
⇒ [“1.9 Removing and installing the unit injector”, page 370](#)

**7 - O-ring**

- replace after removal ⇒ [“1.8 Removing and installing O-rings for unit injector”, page 368](#)

8 - O-ring

- replace after removal ⇒ [“1.8 Removing and installing O-rings for unit injector”, page 368](#)

9 - O-ring

- replace after removal ⇒ [“1.8 Removing and installing O-rings for unit injector”, page 368](#)

10 - Heat-protection seal

- Replace after disassembly

11 - Circlip**12 - Cylinder head****13 - Clamping pad****14 - Screw**

- Replace after disassembly
- 12 Nm + 270°

1.8 Removing and installing O-rings for unit injector

Special tools and workshop equipment required



◆ Assembly device - T10056-

Removing

- Lever off the O-rings from the grooves of the unit injector with extreme care.
- Make sure, above all, that the contact surfaces in the grooves for the O-rings are not damaged.

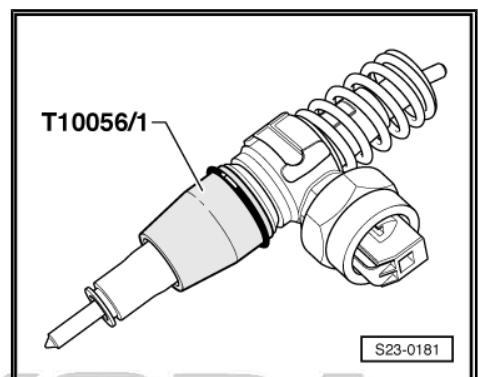
Install



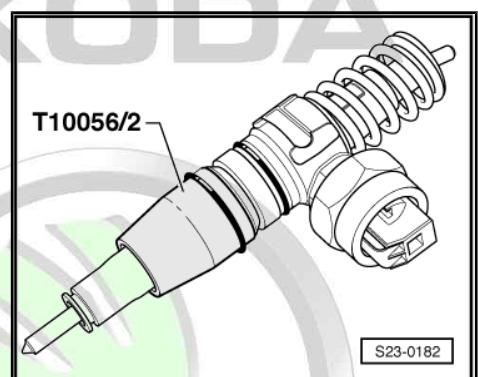
Note

- ◆ Always use the assembly sleeves to install the O-rings. If they are not used there is a risk that the O-rings may become damaged.
- ◆ Pay attention to the correct assignment of the O-rings: The ring thickness decreases towards the injector valve.
- ◆ Avoid rolling the O-rings when sliding them on. The O-rings must not be turned inwards on the groove of the unit injector.

- Remove the heat-protection seal along with the circlip.
- Clean the contact surfaces for the O-rings in the grooves of the unit injector with great care.
- Insert the assembly sleeve -T10056/1- on the unit injector up to the stop.
- Carefully slide the upper, thicker O-ring onto the assembly sleeve and in the groove of the unit injector.
- Remove assembly sleeve.

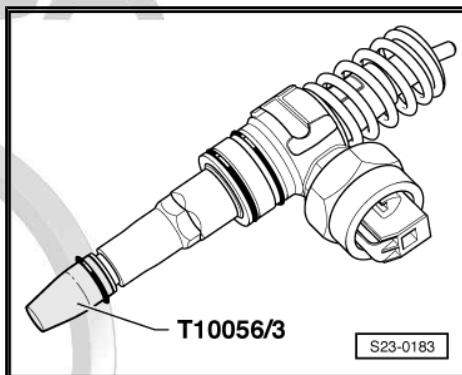


- Insert the assembly sleeve -T10056/2- on the unit injector up to the stop.
- Carefully slide the middle, thinner O-ring onto the assembly sleeve and in the groove of the unit injector.
- Remove assembly sleeve.





- Insert the assembly sleeve -T10056/3- on the unit injector up to the stop.
- Carefully slide the lower O-ring onto the assembly sleeve and insert it in the groove of the unit injector.
- Remove assembly sleeve.
- Slide on a new heat-protection seal together with the circlip.



1.9 Removing and installing the unit injector

⇒ “1.9.1 Removing”, page 370

⇒ “1.9.2 Install”, page 371

Special tools and workshop equipment required

- ◆ Extractor - T10055-
 - ◆ Universal dial gauge holder - MP3-447 (VW 387)-
 - ◆ Dial gauge
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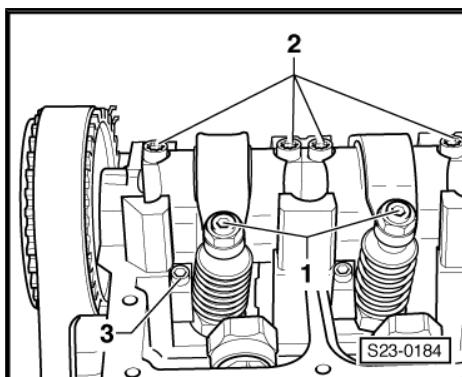
1.9.1 Removing

- Remove top toothed belt guard and cylinder head cover:
- ◆ Fabia II, Roomster
 ⇒ “1.3 Removing and installing cylinder head cover (Fabia II, Roomster)”, page 118 .
- ◆ Octavia II, Superb II
 ⇒ “1.2 Removing and installing cylinder head cover (Octavia II, Superb II)”, page 116 .



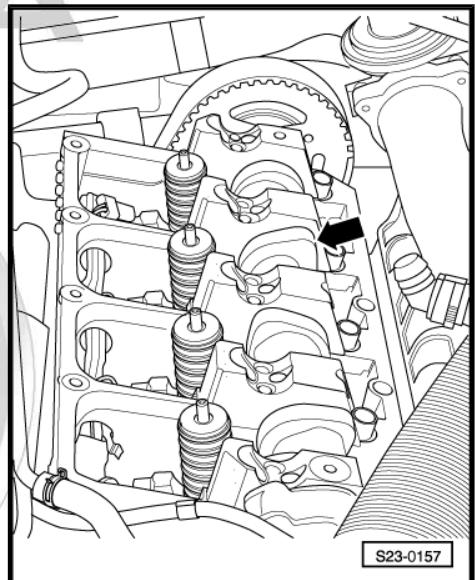
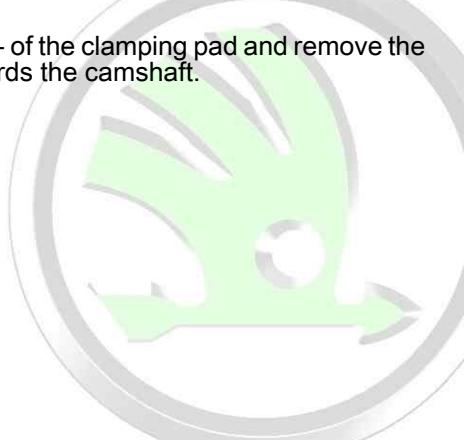
Turn engine at hexagonal head of central screw at front end of the crankshaft, if necessary using counterholder -T10172- or using counterholder -MP1-216 (3036)- at camshaft sprocket.

- Turn the crankshaft until the corresponding cam pair of the relevant unit injector to be removed points uniformly upwards.
- Release the counternuts of the adjusting screws -1- and unscrew the adjusting screws until the valve lever rests against the ball pin of the unit injectors.
- Screw out fixing screws -2- for the valve-lever shaft from the outside to the inside and remove the valve-lever shaft.





- Set the camshaft in such a way that the cam for Cylinder 2 points in -direction of arrow-. All clamping pads can be removed in this position.
- Unplug the connector from the unit injector. Support the opposite side of the connector with your finger in order to avoid twisting the connector.
- Screw out fixing screw -3- of the clamping pad and remove the pad in the direction towards the camshaft.

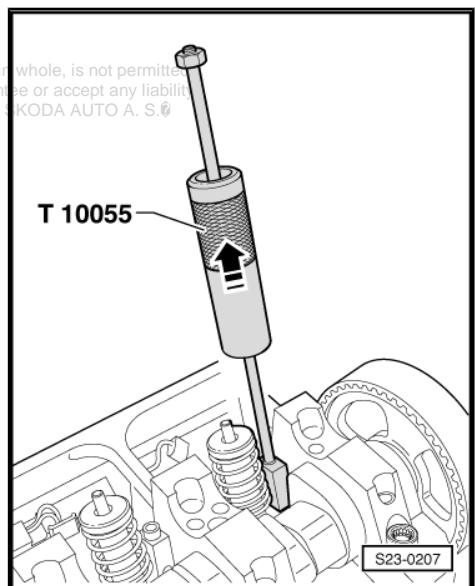


- Insert extractor -T10055- in direction of the camshaft instead of the clamping pad in the slot of the unit injector.
- Remove the unit injector through movements of the sleeve at the nut up to the stop in -direction of arrow-.



Note

Do not interchange the unit injectors, if necessary mark the assignment to each cylinder.



1.9.2 Install



Note

- ◆ For any work procedure involving an adjustment of the unit injector it is necessary to clean the adjusting screw in the valve lever and also the ball pin of the unit injector and to check them for traces of wear. If there is any wear replace the ball pin and the adjusting screw.
- ◆ Grease the contact surfaces between the ball pin and the adjusting screw using -G 000 100-.
- ◆ New unit injectors are supplied with O-rings and heat-protection seal.
- ◆ If the old unit injectors are installed again, all O-rings and the heat-protection seal must be replaced.
- Before installing the unit injector check the correct position of the three O-rings, the heat-protection seal and the circlip.



Note

The O-rings must not be twisted.

- Oil the O-rings and place the unit injector with the greatest of care into the cylinder head.
- Slide unit injector into the cylinder head up to the stop by exerting a uniform pressure.
- Place the clamping pad in the side slot of the unit injector.



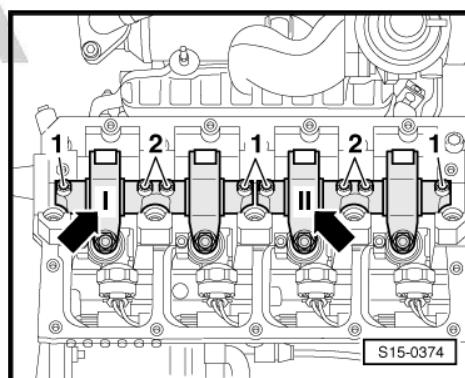
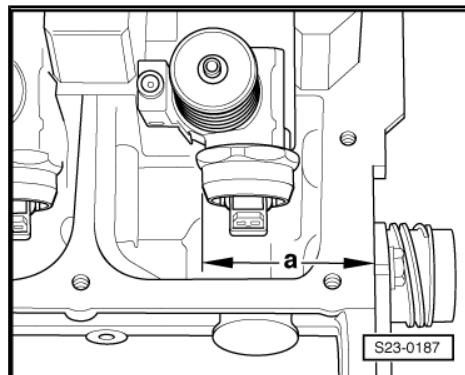
Note

If the unit injector is not perpendicular to the clamping pad the fixing screw may loosen and cause damage to the unit injector or cylinder head.

- Align the unit injector as follows:
- Screw the new fixing screw in the clamping pad until the unit injector can still easily be turned.
- Set unit injector at a right angle to the bearing shell of the camshaft.
- Using a caliper gauge, check dimension -a- from the outer side of the cylinder head to the cylinder surface of the unit injector.

Cylinder	Dimension -a-
1	333.0 ± 0.8 mm
2	245.0 ± 0.8 mm
3	153.6 ± 0.8 mm
4	65.6 ± 0.8 mm

- Adjust the unit injector as required and tighten the fixing screw to 2 Nm and torque a further 270°. Tightening may occur in successive stages.
- Mount valve-lever shaft and tighten up the new fixing screws as follows:
- First tighten the inside -2- then both outside -1- screws by hand. Then tighten in the same order to 20 Nm + 90°.





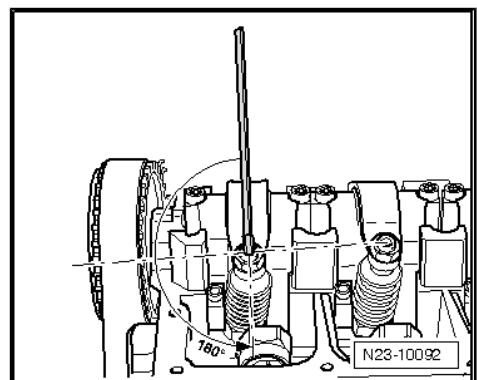
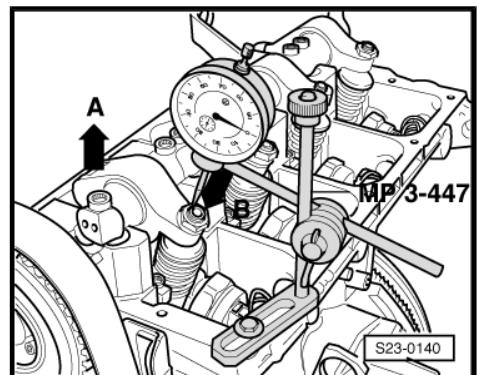
- Place a dial gauge on the adjusting screw of the unit injector.



Note

Turn engine at hexagonal head of central screw at front end of the crankshaft, if necessary using counterholder -T10172- or using counterholder -MP1-216 (3036)- at camshaft sprocket.

- Turn the crankshaft in the running direction of the engine until the roller of the valve lever is on the drive cam tip.
 - ♦ Roller side -arrow A- is at the highest point.
 - ♦ Dial gauge -arrow B- is at the lowest point.
- Remove the dial gauge.
- Turn the adjusting screw in the valve lever until one feels a significant resistance (the unit injector is against the stop).
- Turn the adjusting screw in the opposite direction from the stop by about 180°
- Hold the adjusting screw in this position and tighten up the lock nut using a torque of 30 Nm
- Fit the plug of the unit injector and install the cylinder head cover and the top toothed belt guard.



1.10 Removing and installing engine speed sender -G28- (Octavia II, Superb II)

Special tools and workshop equipment required

- ♦ Hose clamps up to Ø 25 mm - MP7-602 (3094) -
- ♦ Assembly device - T10118 - use for commercial purposes, in part or in whole, is not permitted unless authorised by ŠKODA AUTO A. S. ŠKODA AUTO A. S. does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by ŠKODA AUTO A. S.

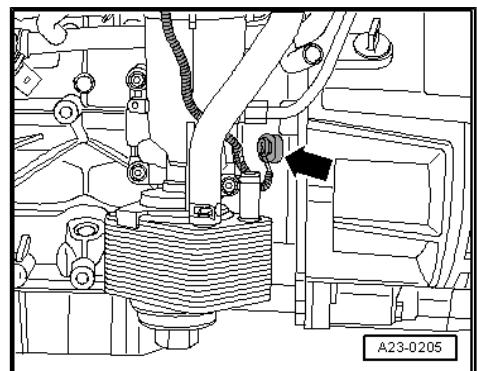
Removing

- Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
- Unclip the coolant hoses at the engine oil cooler with hose clamps and remove the coolant hoses.
- Remove oil filter holder
⇒ "1.2 Summary of components - oil filter bracket (Octavia II, Superb II)", page 175 .
- Remove the plug -arrow- on the engine speed sender - G28- with the assembly device - T10118- and lay the electrical cable to the side.



Note

To unlock the plug without using the assembly device - T10118-, the unlock button must be pressed at the plug using a screwdriver and at the same time unlock the unlock button with a thin wire hook.





- Unscrew the fixing screw -2- for the engine speed sender - G28- -1-.

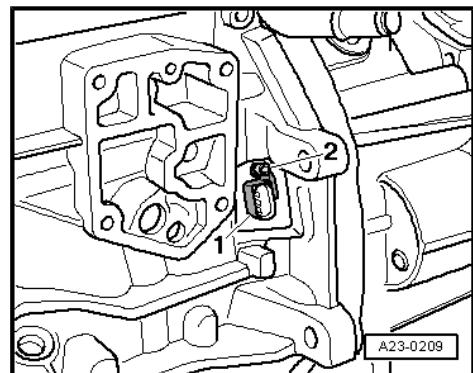
Install

Installation is performed in the reverse order, pay attention to the following points:

- Install oil filter holder
 ⇒ [“1.2 Summary of components - oil filter bracket \(Octavia II, Superb II\)”, page 175](#) .

Tightening torque

Component	Nm
Engine speed sender - G28- on the flange	5



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2 Engine control unit

⇒ “2.1 Removing and installing engine control unit (Superb II)”,
[page 375](#)

⇒ “2.2 Removing and installing engine control unit (Octavia II)”,
[page 376](#)

⇒ “2.3 Removing and installing engine control unit J623 (Fabia II,
 Roomster)”, [page 378](#)

2.1 Removing and installing engine control unit (Superb II)

Special tools and workshop equipment required

- ◆ Body saw e.g. -V.A.G 1523/A-

Note

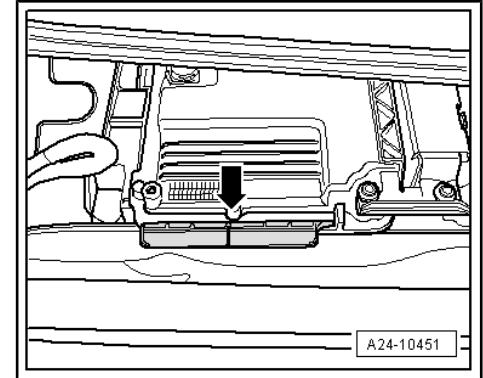
- ◆ *In order to unplug the plugs from the control unit, the control unit must always be removed.*
- ◆ *If the engine control unit is replaced, connect the vehicle diagnosis, measurement and information system - VAS 5051- and carry out the function “replace engine control unit”.*

Removing

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- Switch off ignition.
- Remove the cooling water tank cover ⇒ Body Work; Rep. gr. 66 .
- Open retaining clip -arrow- and remove the engine control unit.

Vehicles with protective cover for plug connections

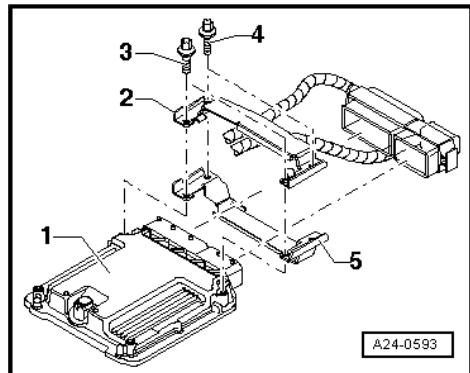




- Cut with body saw a slot for the cross-head screwdriver in the heads of the pull-off screws -3 and 4-.

Note

- ◆ *It must be sawed twice with the body saw, so that the slot is wide enough, in order to unscrew the screws with a suitable screwdriver.*
- ◆ *A locking agent is applied to the pull-off screws.*
- Unscrew the screws and remove the protective cover for the plug connections -2 and 5-.



Continued for all vehicles

- Unlock both plugs at engine control unit and unplug.

Install

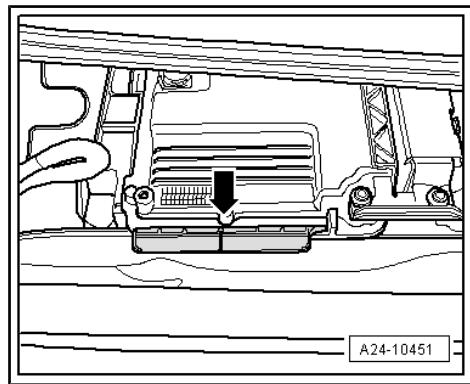
- Connect both plugs and lock.

Vehicles with protective cover for plug connections

- Fasten protective cover with new pull-off screws.
- Tighten pull-off screws evenly until the screw heads are pulled off.

Continued for all vehicles

- Push engine control unit into the bracket and lock with retaining bracket -arrow-.
- Install the plenum chamber cover ⇒ Body Work; Rep. gr. 66 .



2.2 Removing and installing engine control unit (Octavia II)

Note

In order to unplug the plugs from the control unit, the control unit must always be removed.

Special tools and workshop equipment required

- ◆ Body saw e.g. -V.A.G 1523/A-

Note

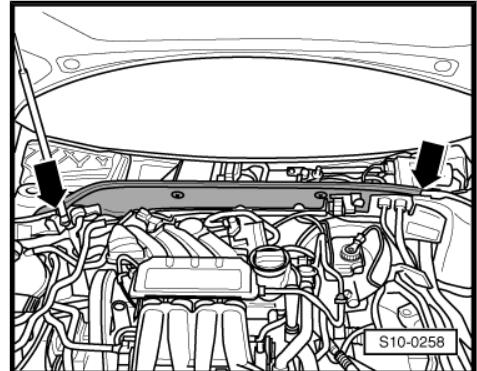
If the engine control unit must be replaced, connect ⇒ Vehicle diagnostic tester and perform the function "replace engine control unit".



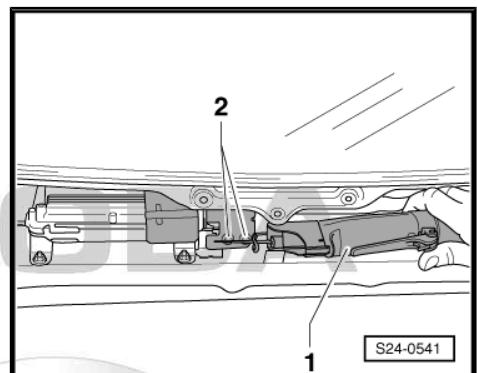
Removing

- When replacing the engine control unit, in the "guided fault finding" the diagnostic field "replace engine control unit" must be selected ⇒ Vehicle diagnostic tester.
- Switch off ignition.
- Remove the cooling water tank cover ⇒ Body Work ⇒ Rep. gr. 66 .
- Remove bulkhead plenum chamber -arrows-.
- Remove windscreen wiper and washer system ⇒ Electrical System ⇒ Rep. gr. 92 .

For vehicles with protective cover

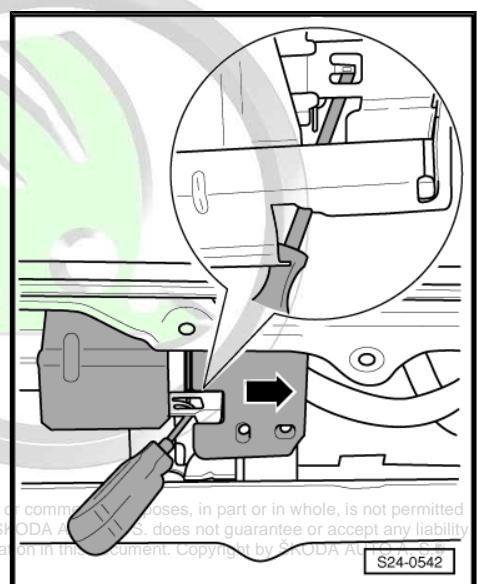


- Cut with body saw -1- a slot for the cross-head screwdriver in the heads of the pull-off screws -2-.
- Screw out the screws.



- Lift locking tab of protective cover with a cross-head screwdriver.
- Push the protective cover in the -direction of the arrow- out of the bracket for engine control unit.

Continued for all vehicles



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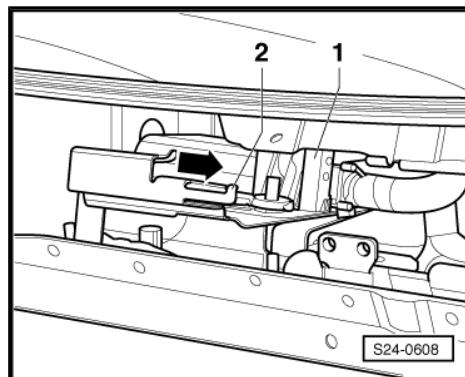
- Unlock retaining bracket -2-.
- Push out engine control unit with plugs in -direction of arrow-.
- Disconnect plug at engine control unit and unplug.

Install



Note

For vehicles with protective cover, the metal swarfs must be suctioned out of the plenum chamber before installing the engine control unit.



- Connect both plugs and lock.
- Push engine control unit into the bracket and lock with retaining bracket -2-.

For vehicles with protective cover

- Fasten protective cover with new pull-off screws (before tightening align the protective cover in such a way that it does not come into contact with the surrounding components)

Continued for all vehicles

- Install windscreen wiper and washer system ⇒ Electrical System ⇒ Rep. gr. 92 .
- Install bulkhead plenum chamber and plenum chamber cover ⇒ Body Work ⇒ Rep. gr. 66 .

2.3 Removing and installing engine control unit -J623- (Fabia II, Roomster)



Note

If the engine control unit must be replaced, connect ⇒ Vehicle diagnostic tester and perform the function "replace engine control unit".

Special tools and workshop equipment required

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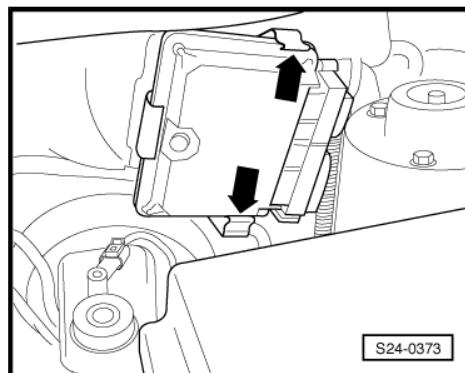
- ◆ Body saw e.g. body saw -V.A.G 1523/A-

Removing

- Switch off ignition.
- Press bracket -arrows- outwards and pull the engine control unit out sideways.

For vehicles with protective cover

- Cut with body saw a slot for the cross-head screwdriver in the heads of the pull-off screws.





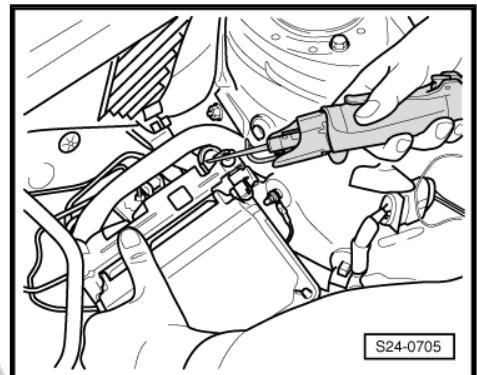
Note

It must be sawed twice with the body saw, so that the slot is wide enough, in order to be able to unscrew the screws with a suitable screwdriver.

- Screw out the screws.
- Remove protective cover of control unit.

Continued for all vehicles

- Disconnect plug at engine control unit and unplug.



Install

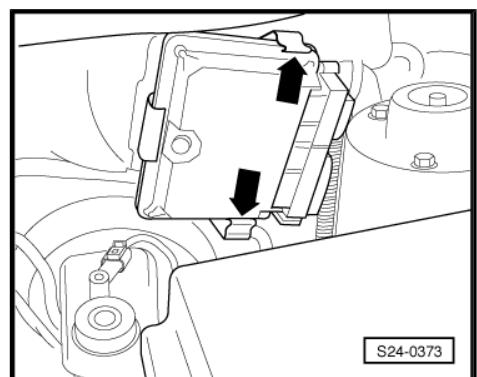
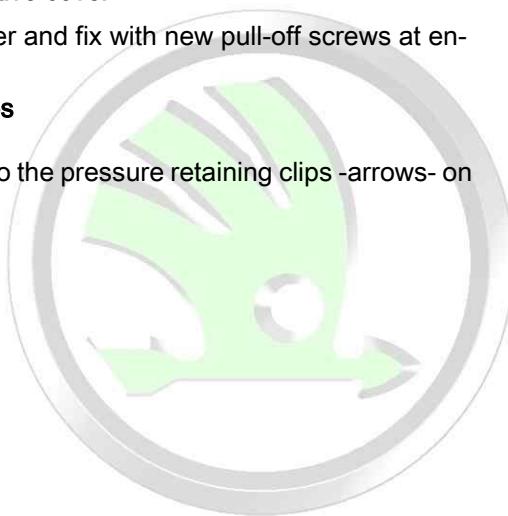
Connect both plugs and lock.

For vehicles with protective cover

- Insert protective cover and fix with new pull-off screws at engine control unit.

Continued for all vehicles

Insert the control unit into the pressure retaining clips -arrows- on the body.



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26 – Exhaust system

1 Removing and installing parts of the exhaust system

- ⇒ “1.1 Summary of components - exhaust system (Superb II)”, page 380
- ⇒ “1.2 Summary of components - exhaust system (Octavia II)”, page 383
- ⇒ “1.3 Summary of components - exhaust system (Fabia II)”, page 389
- ⇒ “1.4 Summary of components - exhaust system (Roomster)”, page 393
- ⇒ “1.5 Removing and installing pre-exhaust pipe with diesel particle filter (Superb II)”, page 396
- ⇒ “1.6 Removing and installing pre-exhaust pipe with diesel particle filter (Octavia II)”, page 399
- ⇒ “1.7 Removing and installing pre-exhaust pipe for vehicles with four-wheel drive (Octavia II)”, page 403
- ⇒ “1.8 Removing and installing pre-exhaust pipe with diesel particle filter (Fabia II, Roomster)”, page 404
- ⇒ “1.9 Replacing middle and rear silencer (Octavia II)”, page 406
- ⇒ “1.10 Replacing middle and rear silencer (Fabia II, Roomster)”, page 407
- ⇒ “1.11 Fitting exhaust system free of stress (Superb II)”, page 408
- ⇒ “1.12 Aligning exhaust system free of stress (Octavia II)”, page 409
- ⇒ “1.13 Fitting exhaust system free of stress (Fabia II, Roomster)”, page 410
- ⇒ “1.14 Inspecting the exhaust system for leaktightness”, page 411

1.1 Summary of components - exhaust system (Superb II)

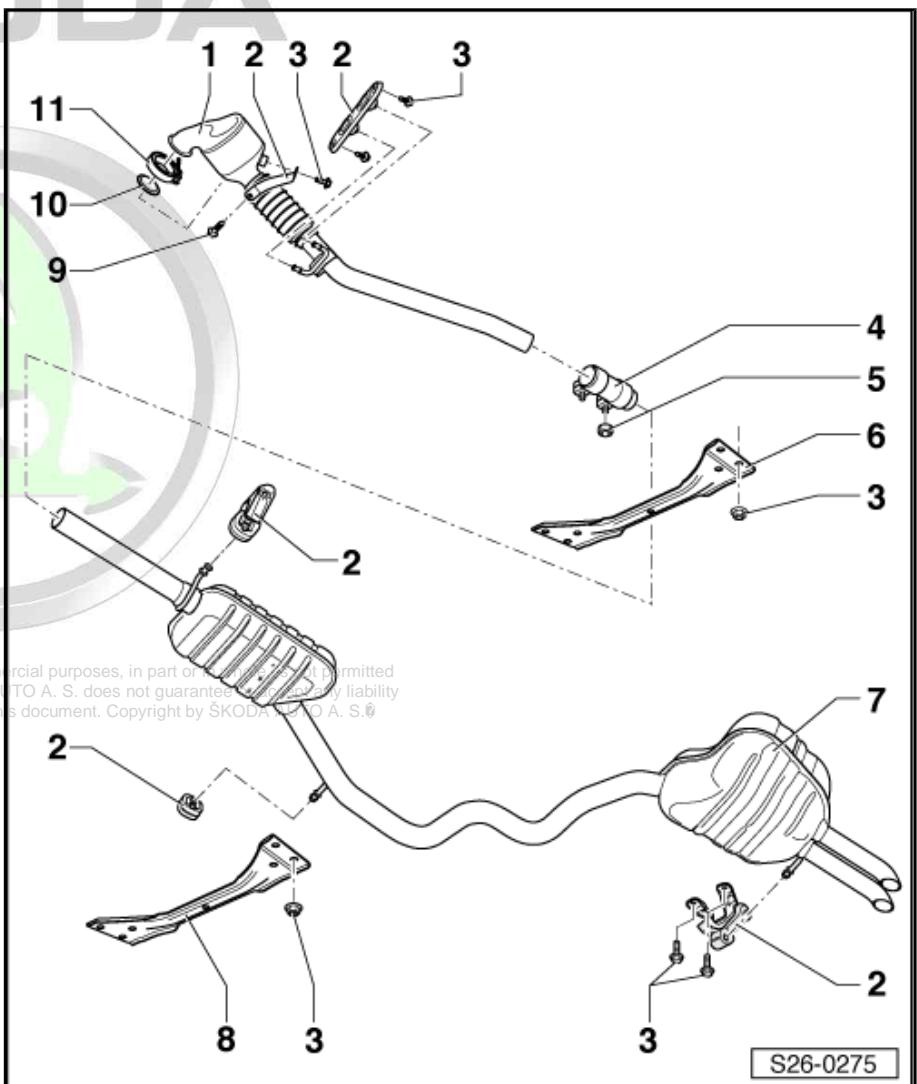
- ⇒ “1.1.1 Summary of components for engine with identification characters BXE”, page 380
- ⇒ “1.1.2 Summary of components for engine with identification characters BLS”, page 382

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1.1.1 Summary of components for engine with identification characters BXE

**1 - Pre-exhaust pipe**

- with catalytic converter
- protect against shocks and blows
- with decoupling element
- do not twist decoupling element more than 10° - risk of damage
- Secure decoupling element with transport security - T10404-
- Align exhaust system free of stress
⇒ "1.11 Fitting exhaust system free of stress (Superb II)", page 408

**2 - Retaining strap**

- replace if damaged
- Pay attention to the part number

3 - Screw

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4 - Clamping sleeve

- align exhaust system free of stress before tightening
⇒ "1.11 Fitting exhaust system free of stress (Superb II)", page 408
- Tighten bolted connections evenly

5 - Nut

- 25 Nm

6 - Front tunnel bridge**7 - Middle and rear silencer**

- replace complete when carrying out repairs
- Align exhaust system free of stress
⇒ "1.11 Fitting exhaust system free of stress (Superb II)", page 408

8 - Rear tunnel bridge**9 - Screw**

- 23 Nm

10 - Gasket

- Replace after disassembly
- Check fitting position

11 - Fixing clamp

- Replace after disassembly
- 7 Nm



1.1.2 Summary of components for engine with identification characters BLS

1 - Exhaust gas pressure sensor 1 - G450-

2 - Support

- for pressure line

3 - Pressure line

- 45 Nm

4 - Screw

- 10 Nm

5 - Lambda probe -G39-

- the thread of new lambda probes must be coated with assembly paste
- if a re-used lambda probe is installed, only coat the thread with hot bolt paste -G 052 112 A3- ; the hot bolt paste -G 052 112 A3- must not get into the slots of the probe body
- 50 Nm

6 - Exhaust gas temperature sender 2 - G448- (Temperature sender upstream particle filter - G506-)

- the thread of the new temperature sender must be coated with assembly paste
- coat only the thread with hot bolt paste -G 052 112 A3- for re-used temperature sender
- 45 Nm

7 - Pre-exhaust pipe

- with diesel particle filter
- removing and installing
[⇒ "1.5 Removing and installing pre-exhaust pipe with diesel particle filter \(Superb II\)", page 396](#)
- with decoupling element
- do not twist decoupling element more than 10° - risk of damage
- Secure decoupling element with transport security - T10404-

8 - Identification

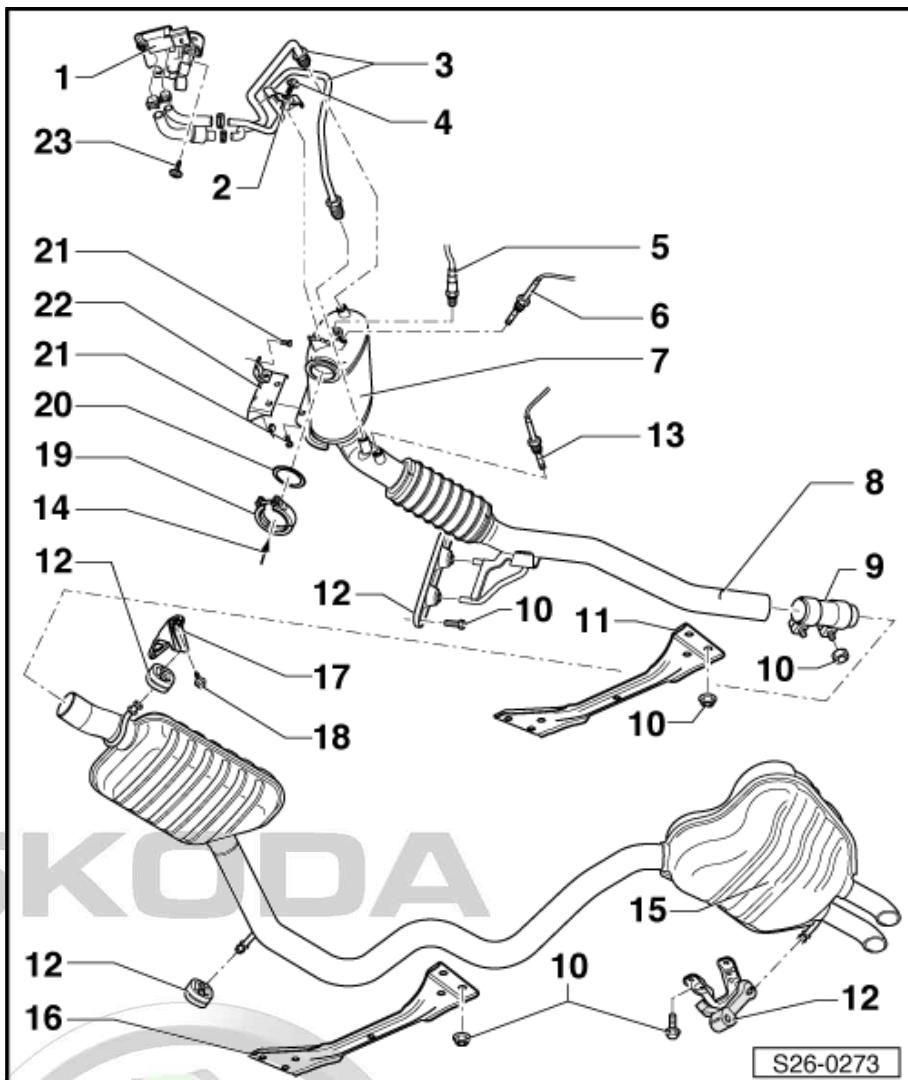
- for clamping sleeve

9 - Clamping sleeve

- align exhaust system free of stress before fitting on
[⇒ "1.11 Fitting exhaust system free of stress \(Superb II\)", page 408](#)
- Tighten bolted connections evenly

10 - Nut

- 25 Nm





11 - Front tunnel bridge

12 - Retaining strap

- replace if damaged
- Pay attention to the part number

13 - Exhaust gas temperature sender 3 - G495- (Temperature sender downstream particle filter - G527-)

- Orange plug
- the thread of the new temperature sender must be coated with assembly paste
- coat only the thread with hot bolt paste - G 052 112 A3- for re-used temperature sender
- 45 Nm

14 - from exhaust turbocharger

15 - Middle and rear silencer

- replace complete when carrying out repairs
- Align exhaust system free of stress
 ⇒ [“1.11 Fitting exhaust system free of stress \(Superb II\)”, page 408](#)

16 - Rear tunnel bridge

17 - Hanger

18 - Screw

- 25 Nm

19 - Fixing clamp

- Replace after disassembly
- 7 Nm

20 - Gasket

- Replace after disassembly
- Check fitting position

21 - Screw

- 25 Nm

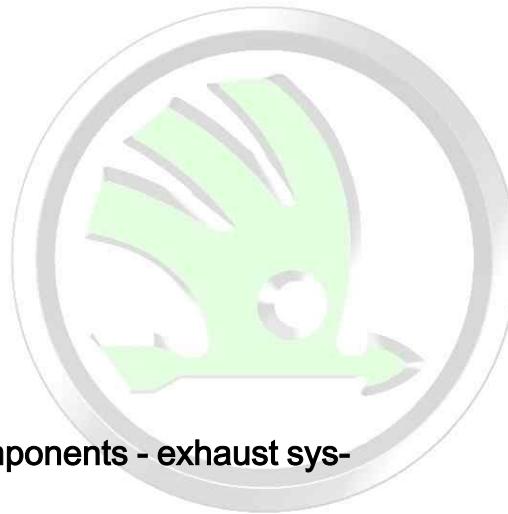
22 - Support

- bolted to the cylinder block

23 - Screw

- 8 Nm

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1.2 Summary of components - exhaust system (Octavia II)

⇒ [“1.2.1 Summary of components for engine with identification characters BJB, BKC, BXE on vehicles with front-wheel drive”, page 384](#)

⇒ [“1.2.2 Summary of components for engine with identification characters BLS on vehicles with front-wheel drive”, page 385](#)

⇒ [“1.2.3 Summary of components for engine with identification characters BKC, BXE on vehicles with four-wheel drive”, page 387](#)

⇒ [“1.2.4 Summary of components for engine with identification characters BLS on vehicles with four-wheel drive”, page 388](#)



1.2.1 Summary of components for engine with identification characters BJB, BKC, BXE on vehicles with front-wheel drive

1 - Rear tunnel bridge

2 - The middle silencer

- for first equipment building unit with rear silencer, replace individually when carrying out repairs
- Separation point
⇒ [page 407](#)
- Align exhaust system free of stress
⇒ ["1.12 Aligning exhaust system free of stress \(Octavia II\)", page 409](#)

3 - Retaining strap

- replace if damaged
- Pay attention to the part number

4 - Hanger

5 - Nut

- 20 Nm

6 - Screw

- 23 Nm

7 - Fixing clamp

- Replace after disassembly
- 7 Nm

8 - Gasket

- Replace after disassembly
- Check fitting position

9 - Pre-exhaust pipe

- with catalytic converter
- protect against shocks and blows
- with decoupling element
- do not twist decoupling element more than 10° - risk of damage
- Secure decoupling element with transport security - T10404-
- Align exhaust system free of stress
⇒ ["1.12 Aligning exhaust system free of stress \(Octavia II\)", page 409](#)

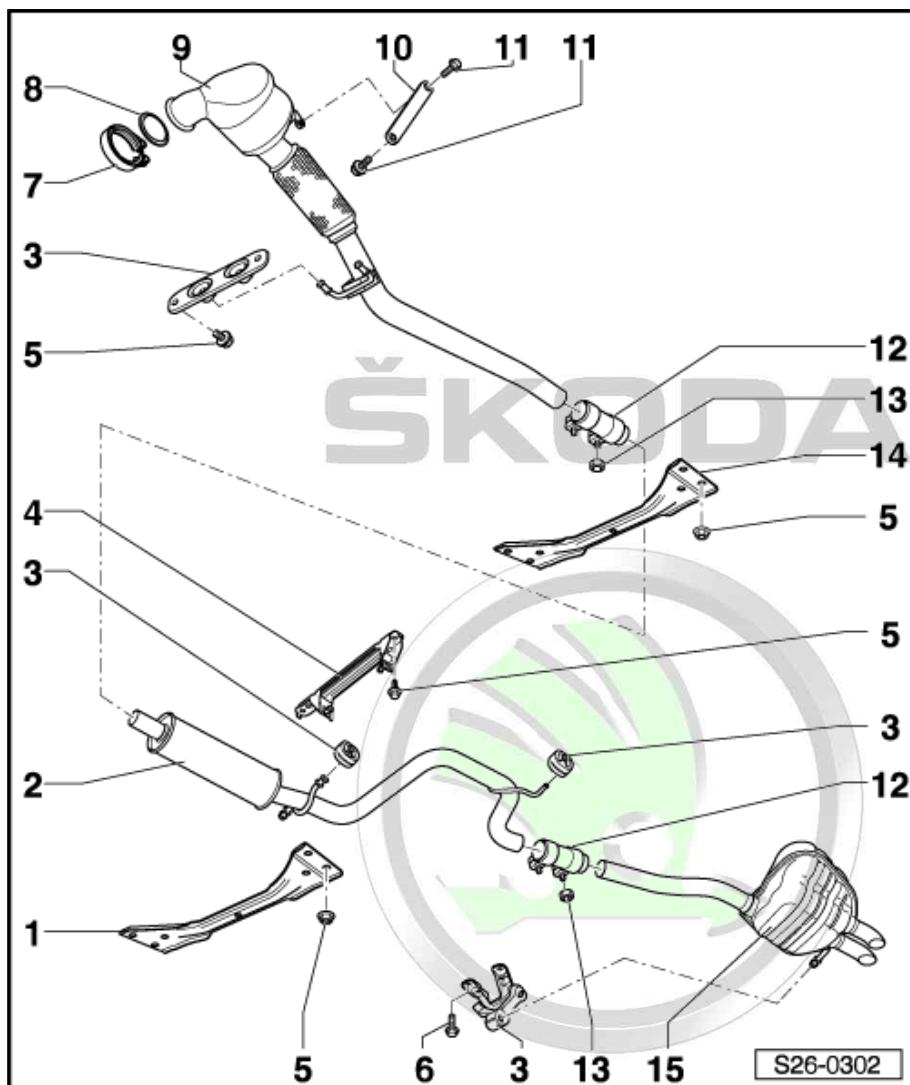
10 - Strut

11 - Screw

- 40 Nm

12 - Clamping sleeve

- align exhaust system free of stress before tightening
⇒ ["1.12 Aligning exhaust system free of stress \(Octavia II\)", page 409](#)
- Tighten bolted connections evenly



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**13 - Nut**

- 23 Nm

14 - Front tunnel bridge**15 - Rear silencer**

- for first equipment building unit with middle silencer, replace individually when carrying out repairs
- Separation point [⇒ page 407](#)
- Align exhaust system free of stress
[⇒ "1.12 Aligning exhaust system free of stress \(Octavia II\)", page 409](#)

1.2.2 Summary of components for engine with identification characters BLS on vehicles with front-wheel drive

1 - Exhaust gas pressure sensor 1 - G450-

2 - Support

- for pressure line

3 - Pressure line

- 45 Nm

4 - Screw

- 10 Nm

5 - Lambda probe -G39-

- the thread of new lambda probes must be coated with assembly paste
- for re-used lambda probe, only coat the thread with hot bolt paste - G 052 112 A3- ; the hot bolt paste - G 052 112 A3- must not get into the slots of the probe body
- 50 Nm

6 - Exhaust gas temperature sender 2 - G448- (Temperature sender upstream particle filter - G506-)

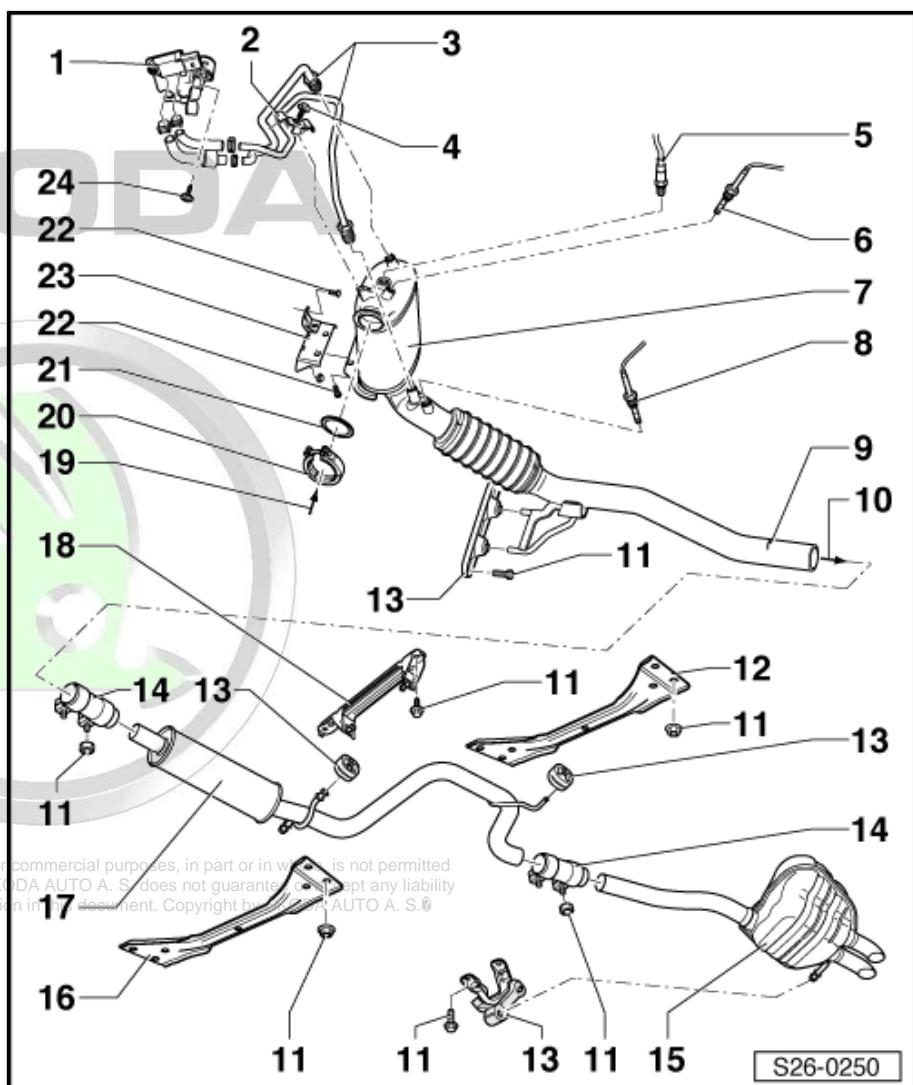
- Brown plug
- coat only the thread with hot bolt paste - G 052 112 A3-
- 45 Nm

7 - Pre-exhaust pipe with diesel particle filter

- removing and installing
[⇒ "1.6 Removing and installing pre-exhaust pipe with diesel particle filter \(Octavia II\)", page 399](#)
- with decoupling element
- do not twist decoupling element more than 10° - risk of damage
- Secure decoupling element with transport security - T10404-

8 - Exhaust gas temperature sender 3 - G495- (Temperature sender downstream particle filter - G527-)

- Orange plug
- coat only the thread with hot bolt paste -G 052 112 A3-





- 45 Nm

9 - Identification

- for clamping sleeve

10 - to the central silencer

11 - Nut

- 20 Nm

12 - Front tunnel bridge

13 - Retaining strap

- replace if damaged
- Pay attention to the part number

14 - Clamping sleeve

- align exhaust system free of stress before tightening
⇒ "1.12 Aligning exhaust system free of stress (Octavia II)", page 409
- Tighten bolted connections evenly

15 - Rear silencer

- for first equipment building unit with middle silencer, replace individually when carrying out repairs
- Separation point *⇒ page 407*
- Align exhaust system free of stress
⇒ "1.12 Aligning exhaust system free of stress (Octavia II)", page 409

16 - Rear tunnel bridge

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17 - The middle silencer

- for first equipment building unit with rear silencer, replace individually when carrying out repairs
- Separation point *⇒ page 407*
- Align exhaust system free of stress
⇒ "1.12 Aligning exhaust system free of stress (Octavia II)", page 409

18 - Hanger

19 - from exhaust turbocharger

20 - Fixing clamp

- Replace after disassembly
- 7 Nm

21 - Gasket

- Replace after disassembly
- Check fitting position

22 - Screw

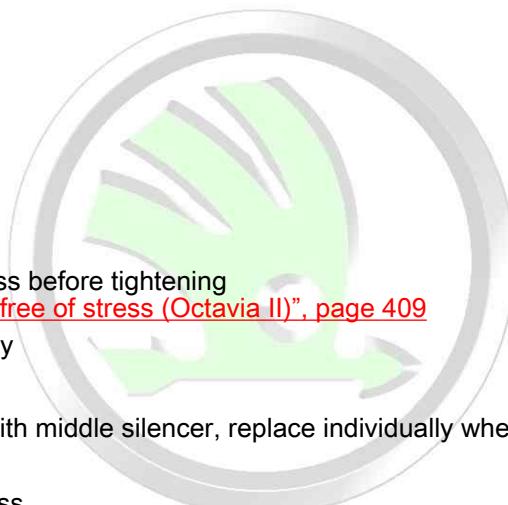
- 25 Nm

23 - Support

- screwed onto the cylinder head cover

24 - Screw

- 8 Nm





1.2.3 Summary of components for engine with identification characters BKC, BXE on vehicles with four-wheel drive

1 - Pre-exhaust pipe

- with catalytic converter
- protect against shocks and blows
- with decoupling element
- do not twist decoupling element more than 10° - risk of damage
- Secure decoupling element with transport security - T10404-
- removing and installing
⇒ ["1.7 Removing and installing pre-exhaust pipe for vehicles with four-wheel drive \(Octavia II\)", page 403](#)
- Align exhaust system free of stress
⇒ ["1.12 Aligning exhaust system free of stress \(Octavia II\)", page 409](#)

2 - Retaining strap

- replace if damaged
- Pay attention to the part number

3 - Screws or nuts

- 20 Nm

4 - Screw

- 23 Nm

5 - Clamping sleeve

- align exhaust system free of stress before tightening
⇒ ["1.12 Aligning exhaust system free of stress \(Octavia II\)", page 409](#)
- Tighten bolted connections evenly

6 - Nut

- 23 Nm

7 - Front tunnel bridge

8 - Middle and rear silencer

- replace complete when carrying out repairs
- Align exhaust system free of stress
⇒ ["1.12 Aligning exhaust system free of stress \(Octavia II\)", page 409](#)

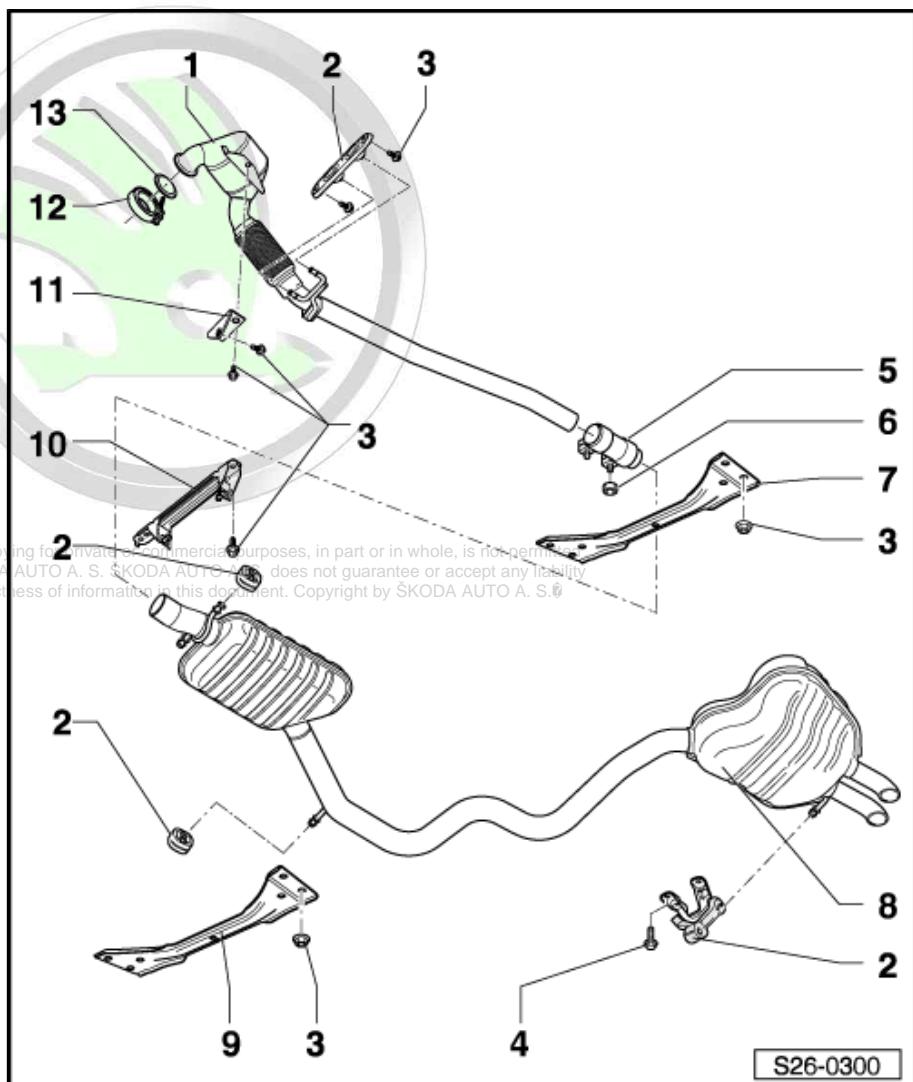
9 - Rear tunnel bridge

10 - Hanger

11 - Support

12 - Fixing clamp

- Replace after disassembly
- 7 Nm





13 - Gasket

- Replace after disassembly
- Check fitting position



1.2.4 Summary of components for engine with identification characters BLS on vehicles with four-wheel drive

1 - Exhaust gas pressure sensor 1 - G450-

2 - Support

- for pressure line

3 - Pressure line

- 45 Nm

4 - Screw

- 10 Nm

5 - Lambda probe -G39-

- the thread of new lambda probes must be coated with assembly paste
- for re-used lambda probe, only coat the thread with hot bolt paste - G 052 112 A3- ; the hot bolt paste - G 052 112 A3- must not get into the slots of the probe body
- 50 Nm

6 - Exhaust gas temperature sender 2 - G448- (Temperature sender upstream particle filter - G506-)

- Brown plug
- coat only the thread with hot bolt paste - G 052 112 A3-
- 45 Nm

7 - Pre-exhaust pipe with diesel particle filter

- removing and installing
[⇒ "1.6 Removing and installing pre-exhaust pipe with diesel particle filter \(Octavia II\)", page 399](#)
- with decoupling element
- do not twist decoupling element more than 10° - risk of damage
- Secure decoupling element with transport security - T10404-

8 - Identification

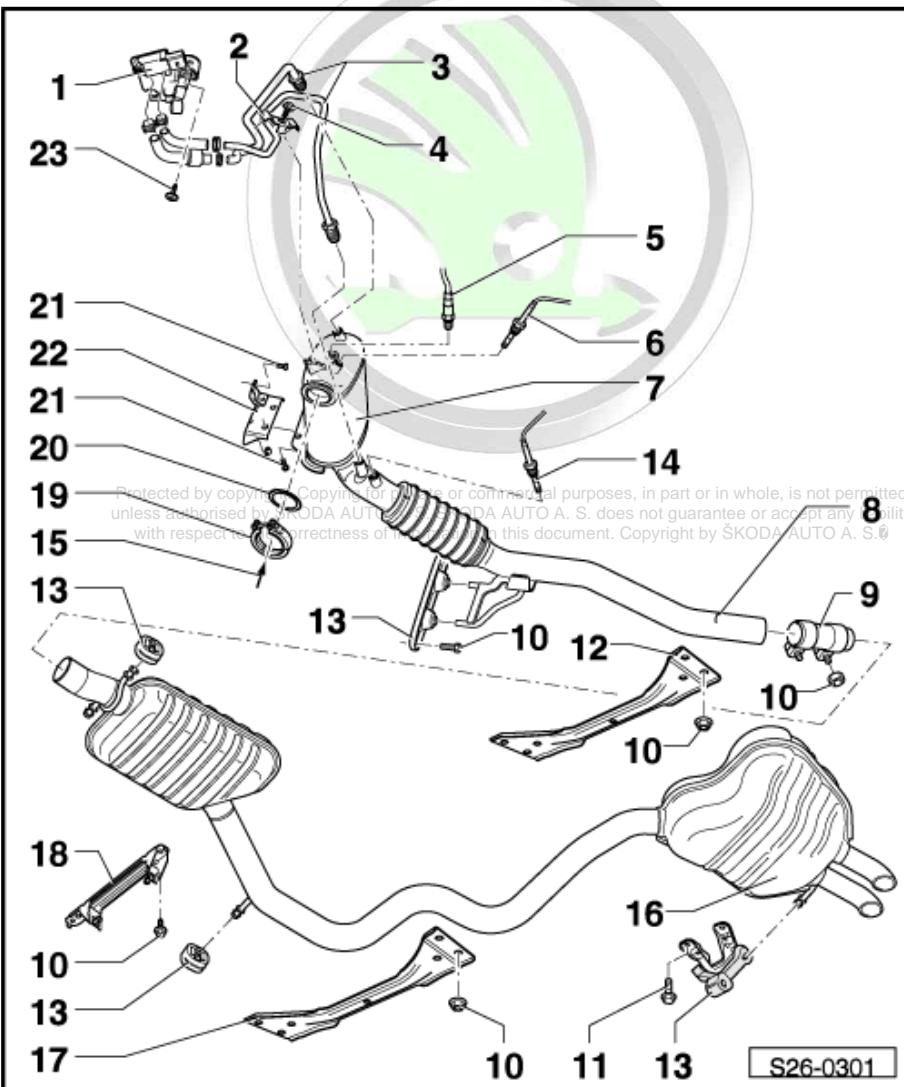
- for clamping sleeve

9 - Clamping sleeve

- align exhaust system free of stress before tightening
[⇒ "1.12 Aligning exhaust system free of stress \(Octavia II\)", page 409](#)
- Tighten bolted connections evenly

10 - Nut

- 20 Nm



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11 - Screw

- 23 Nm

12 - Front tunnel bridge

13 - Retaining strap

- replace if damaged
- Pay attention to the part number

14 - Exhaust gas temperature sender 3 - G495- (Temperature sender downstream particle filter - G527-)

- Orange plug
- coat only the thread with hot bolt paste -G 052 112 A3-
- 45 Nm

15 - from exhaust turbocharger

16 - Rear silencer

- replace complete when carrying out repairs
- Align exhaust system free of stress
[⇒ "1.12 Aligning exhaust system free of stress \(Octavia II\)", page 409](#)

17 - Rear tunnel bridge

18 - Hanger

19 - Fixing clamp

Replace after disassembly
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20 - Gasket

- Replace after disassembly
- Check fitting position

21 - Screw

- 25 Nm

22 - Support

- screwed onto the cylinder head cover

23 - Screw

- 8 Nm

1.3 Summary of components - exhaust system (Fabia II)

[⇒ "1.3.1 Summary of components for engine with identification characters BSW", page 390](#)

[⇒ "1.3.2 Summary of components for engine with identification characters BLS", page 391](#)



1.3.1 Summary of components for engine with identification characters BSW

1 - Gasket

- Replace after disassembly

2 - Nut

- Replace after disassembly
- Coat stud bolts with hot bolt paste - G 052 112 A3- before installing
- 25 Nm

3 - Pre-exhaust pipe

- with catalytic converter
- with decoupling element
- do not twist decoupling element more than 10° - risk of damage
- Secure decoupling element with transport security - T10404-
- Align exhaust system free of stress
⇒ "1.13 Fitting exhaust system free of stress (Fabia II, Roomster)", page 410

4 - Retaining strap

5 - Clamp

6 - Nut

- 25 Nm

7 - Clamping sleeve

- align exhaust system free of stress before tightening
⇒ "1.13 Fitting exhaust system free of stress (Fabia II, Roomster)", page 410
- Tighten bolted connections evenly
- 23 Nm

8 - Retaining strap

9 - Screw

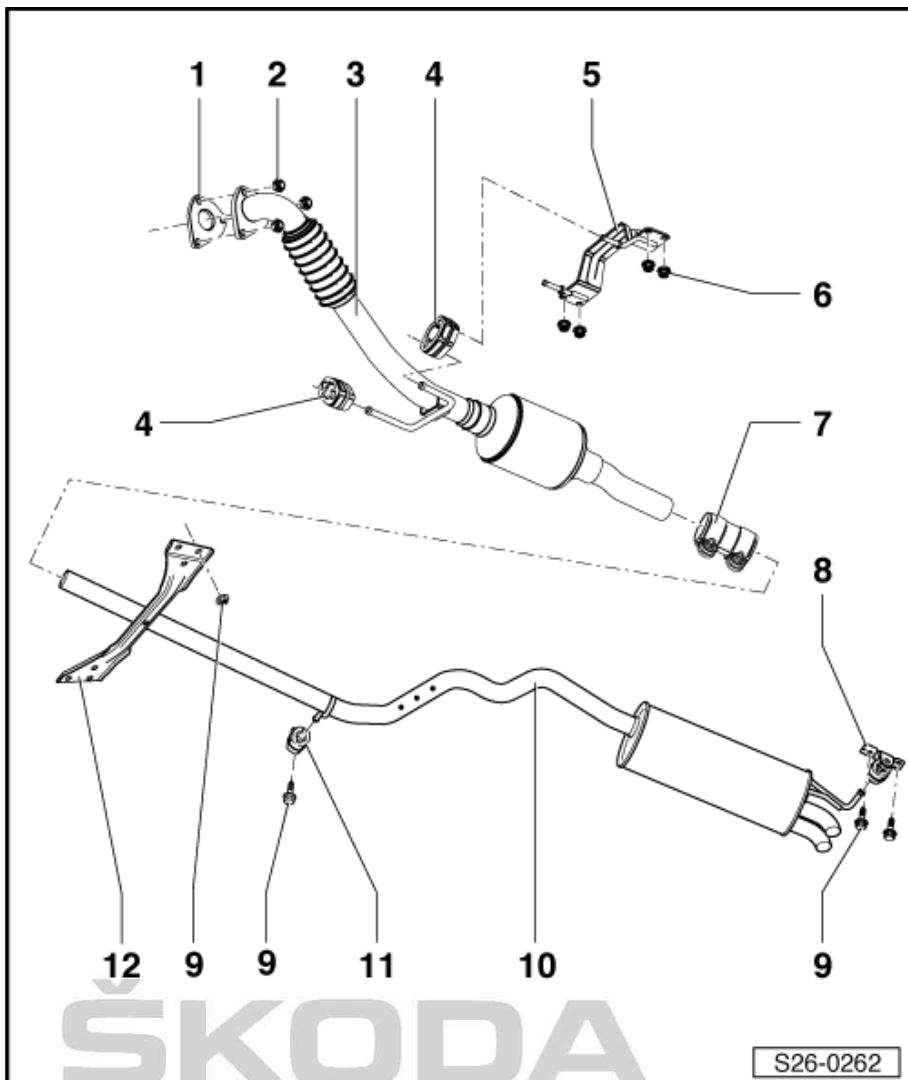
- 23 Nm

10 - Middle and rear silencer

- Replace individually when carrying out repairs
⇒ "1.10 Replacing middle and rear silencer (Fabia II, Roomster)", page 407
- Align exhaust system free of stress
⇒ "1.13 Fitting exhaust system free of stress (Fabia II, Roomster)", page 410

11 - Retaining strap

12 - Tunnel bridge



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1.3.2 Summary of components for engine with identification characters BLS

Pre-exhaust pipe with diesel particle filter

1 - Exhaust gas pressure sensor 1 - G450-

2 - Support

3 - Nut

4 - Exhaust gas temperature sender 2 - G448- (Temperature sender upstream particle filter - G506-)

- coat the thread with hot screw paste - G 052 112 A3-

- 45 Nm

5 - Pressure line

- 45 Nm

6 - Heat shield

7 - Screw

- 9 Nm

8 - Support

- for pressure line

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9 - Pressure line

- 45 Nm

10 - Exhaust gas temperature sender 3 - G495- (Temperature sender downstream particle filter - G527-)

- coat the thread with hot screw paste - G 052 112 A3-

- 45 Nm

11 - Pre-exhaust pipe

- with decoupling element
- do not twist decoupling element more than 10° - risk of damage
- Secure decoupling element with transport security - T10404-

12 - Identification

- for clamping sleeve

13 - Diesel particle filter

- removing and installing
 ⇒ "1.8 Removing and installing pre-exhaust pipe with diesel particle filter (Fabia II, Roomster)",
 page 404

14 - Gasket

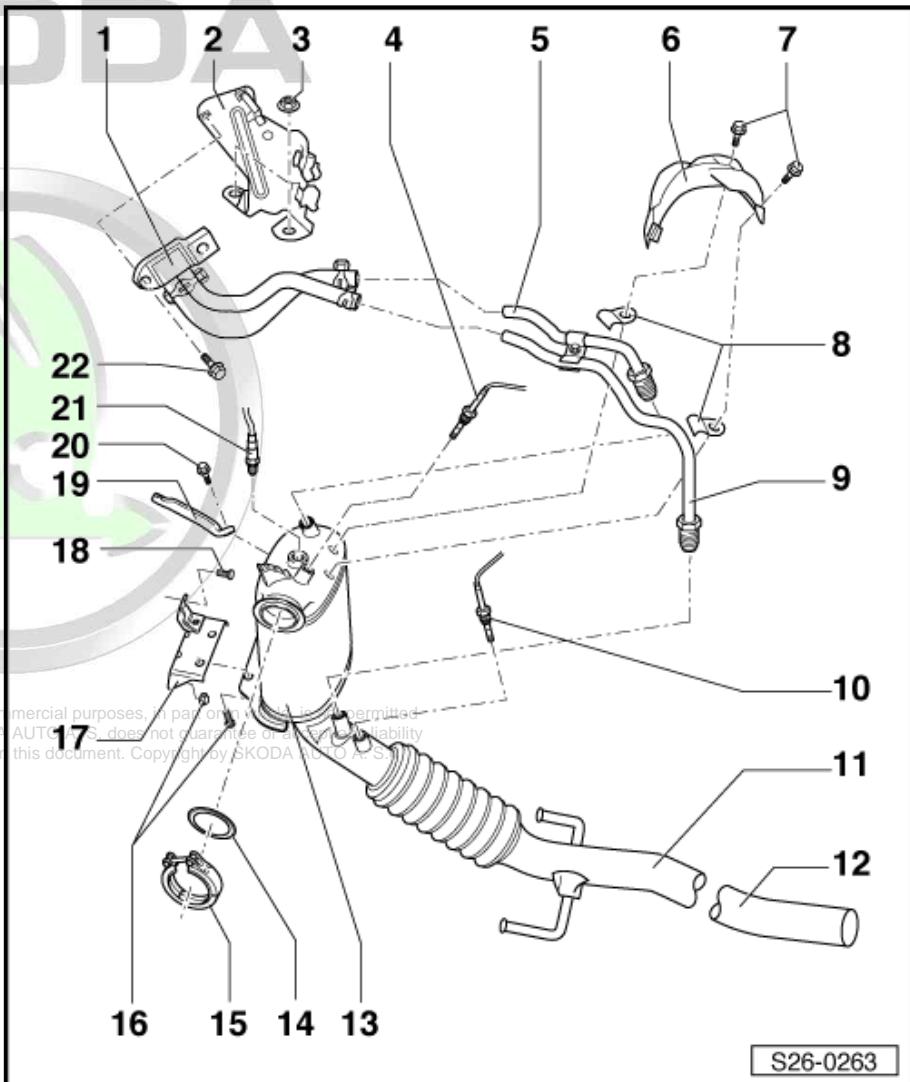
- Replace after disassembly
- Check fitting position

15 - Fixing clamp

- Replace after disassembly
- 7 Nm

16 - Screws or nuts

- 25 Nm



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17 - Support

- bolted to the cylinder block

18 - Screw

- 25 Nm

19 - Support

- screwed onto the engine mount console

20 - Screw

- 23 Nm

21 - Lambda probe - G39-

- only coat the thread with hot screw paste - G 052 112 A3- ; the paste must not get into the slot of the probe body

- 50 Nm

22 - Screw

- 8 Nm

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Rear silencer

1 - from diesel particle filter

2 - Clamping sleeve

- 23 Nm

3 - Retaining strap

- replace if damaged

4 - Screw

- 25 Nm

5 - Separation point

- the rear silencer is a building unit for first equipment with middle part silencer
- Replace individually when carrying out repairs
- Position clamping sleeve on the marking -arrows B- when installing
- Align exhaust system free of stress
⇒ "1.13 Fitting exhaust system free of stress (Fabia II, Roomster)", page 410

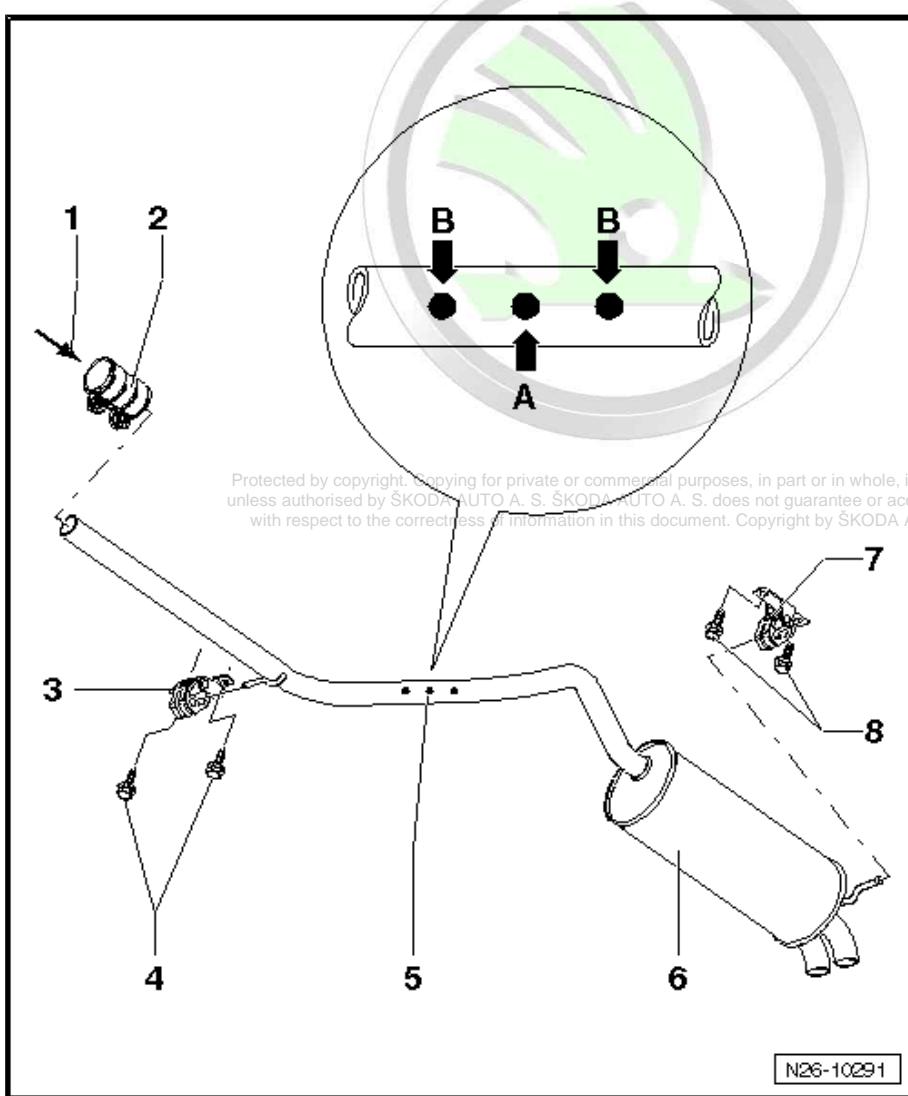
6 - Rear silencer

7 - Retaining strap

- replace if damaged

8 - Screw

- 25 Nm



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1.4 Summary of components - exhaust system (Roomster)

⇒ "1.4.1 Summary of components for engine with identification characters AXR, BSW", page 393

⇒ "1.4.2 Summary of components for engine with identification characters BLS", page 394

1.4.1 Summary of components for engine with identification characters AXR, BSW

1 - Gasket

- Replace after disassembly

2 - Nut

- Replace after disassembly
- coat stud bolts of exhaust manifold with hot bolt paste - G 052 112 A3- before installing.
- 25 Nm

3 - Pre-exhaust pipe

- with catalytic converter
- with decoupling element
- do not twist decoupling element more than 10° - risk of damage
- Secure decoupling element with transport security - T10404-
- Align exhaust system free of stress
⇒ "1.13 Fitting exhaust system free of stress (Fabia II, Roomster)", page 410

4 - Retaining strap

5 - Clamp

6 - Nut

- 25 Nm

7 - Clamping sleeve

- align exhaust system free of stress before tightening
⇒ "1.13 Fitting exhaust system free of stress (Fabia II, Roomster)", page 410
- Tighten bolted connections evenly

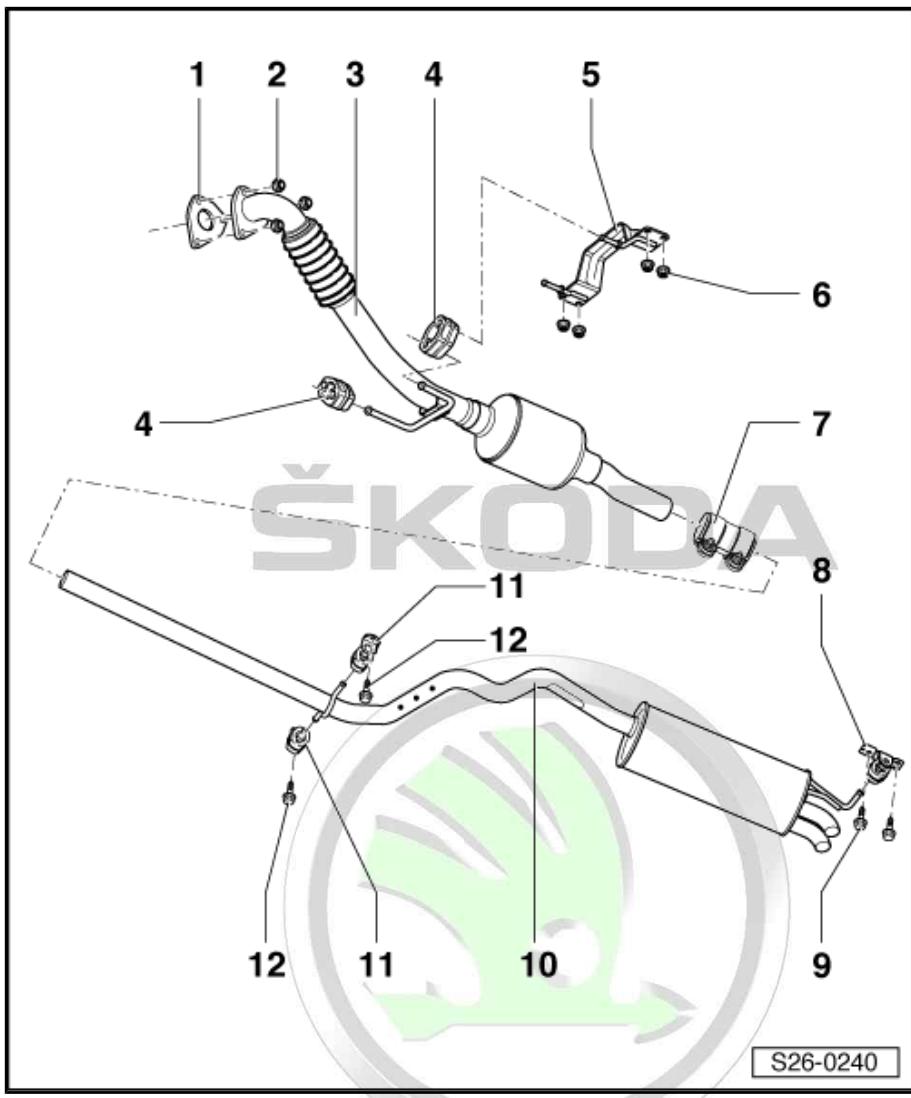
8 - Retaining strap

9 - Screw

- 23 Nm

10 - Middle and rear silencer

- Replace individually when carrying out repairs
⇒ "1.10 Replacing middle and rear silencer (Fabia II, Roomster)", page 407



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- Align exhaust system free of stress
[⇒ "1.13 Fitting exhaust system free of stress \(Fabia II, Roomster\)", page 410](#)

11 - Retaining strap

12 - Screw

- 23 Nm

1.4.2 Summary of components for engine with identification characters BLS

Pre-exhaust pipe with diesel particle filter

1 - Exhaust gas pressure sensor 1 - G450-

2 - Support

3 - Nut

4 - Exhaust gas temperature sender 2 - G448- (Temperature sender upstream particle filter - G506-)

- coat the thread with hot screw paste - G 052 112 A3-

- 45 Nm

5 - Pressure line

- 45 Nm

6 - Heat shield

7 - Screw

- 9 Nm

8 - Support

- for pressure line

9 - Pressure line

- 45 Nm

10 - Exhaust gas temperature sender 3 - G495- (Temperature sender downstream particle filter - G527-)

- coat the thread with hot screw paste - G 052 112 A3-

- 45 Nm

11 - Pre-exhaust pipe

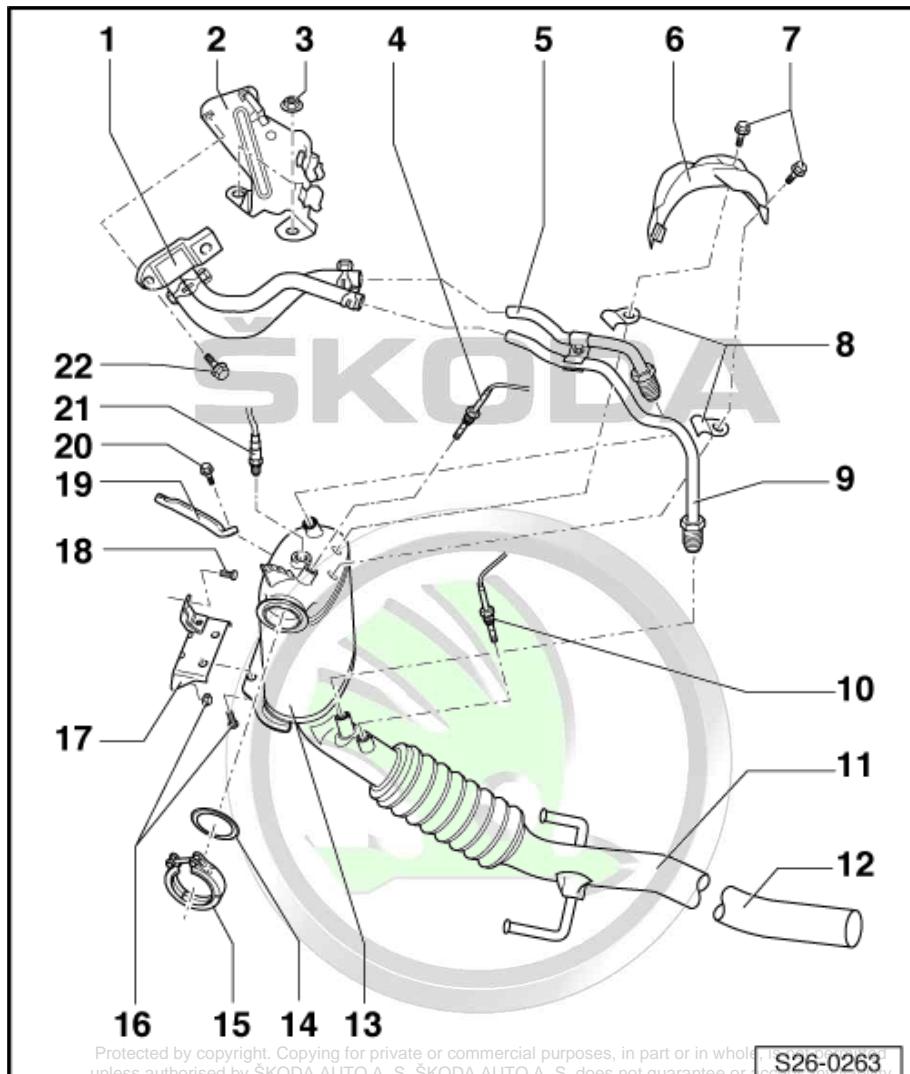
- with decoupling element
- do not twist decoupling element more than 10° - risk of damage
- Secure decoupling element with transport security - T10404-

12 - Identification

- for clamping sleeve

13 - Diesel particle filter

- removing and installing
[⇒ "1.8 Removing and installing pre-exhaust pipe with diesel particle filter \(Fabia II, Roomster\)", page 404](#)



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**14 - Gasket**

- Replace after disassembly
- Check fitting position

15 - Fixing clamp

- Replace after disassembly
- 7 Nm

16 - Screws or nuts

- 25 Nm

17 - Support

- bolted to the cylinder block

18 - Screw

- 25 Nm

19 - Support

- screwed onto the engine mount console

20 - Screw

- 23 Nm

21 - Lambda probe - G39-

- only coat the thread with hot screw paste - G 052 112 A3- ; the paste must not get into the slot of the probe body
- 50 Nm

22 - Screw

- 8 Nm

Rear silencer

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1 - Retaining strap

- replace if damaged

2 - Nut

- 20 Nm

3 - Rear silencer

- Align exhaust system free of stress
⇒ "1.13 Fitting exhaust system free of stress (Fabia II, Roomster)", page 410

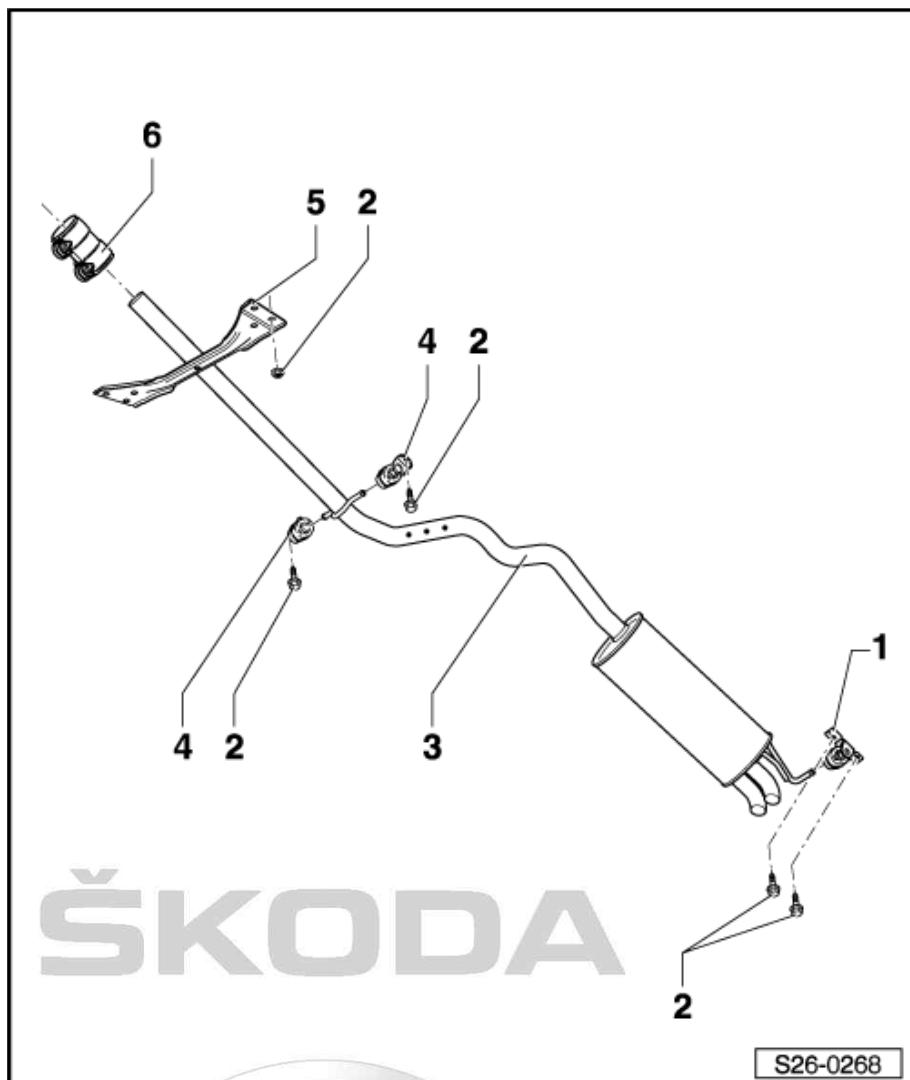
4 - Retaining strap

- replace if damaged

5 - Tunnel bridge

6 - Clamping sleeve

- 23 Nm



1.5 Removing and installing pre-exhaust pipe with diesel particle filter (Superb II)

Special tools and workshop equipment required

- ◆ Pliers for spring strap clamps
- ◆ Key set for lambda probe

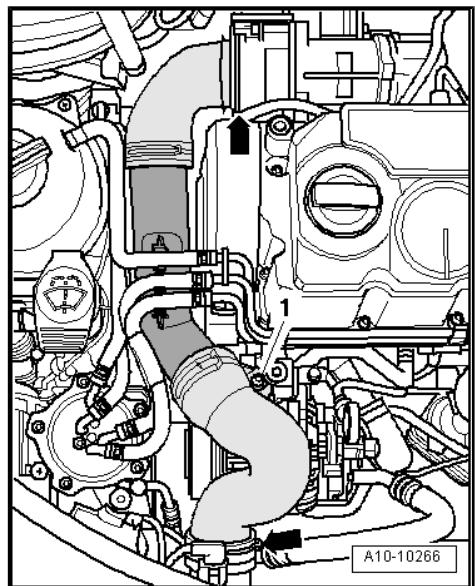
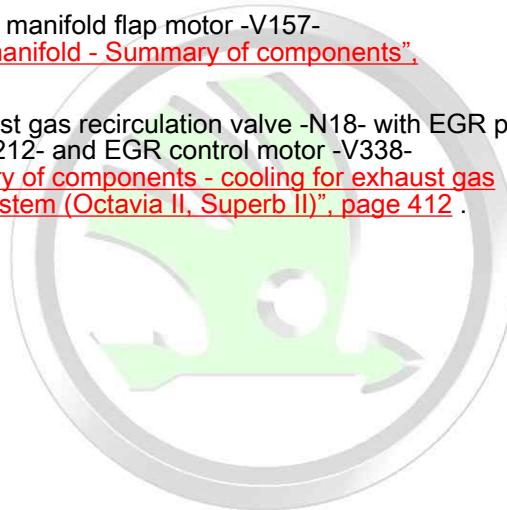
Removing

- Remove engine cover.

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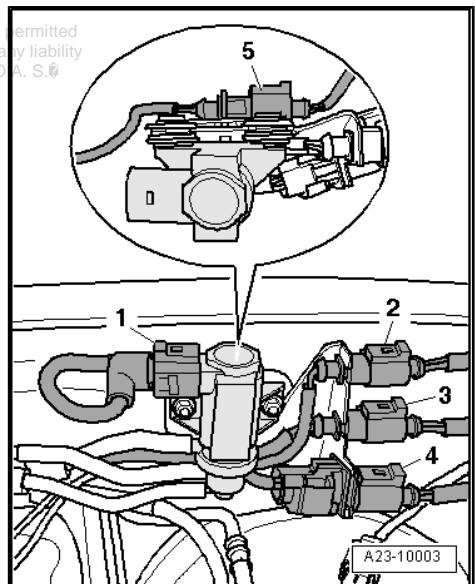


- Release fuel hoses and coolant hoses at right air guide pipe.
- Remove right air guide pipe.
- Remove intake manifold flap motor -V157-
⇒ “1.3 Intake manifold - Summary of components”,
page 360 .
- Remove exhaust gas recirculation valve -N18- with EGR po-
tentio-
meter -G212- and EGR control motor -V338-
⇒ “2.1 Summary of components - cooling for exhaust gas
recirculation system (Octavia II, Superb II)”, page 412 .

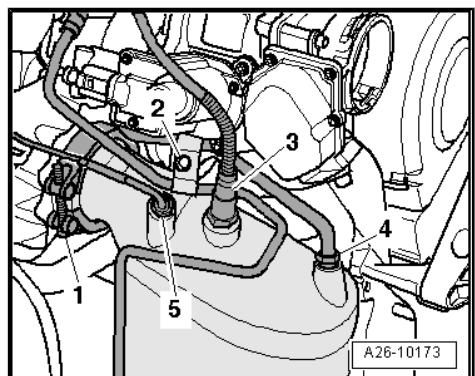


- Disconnect el. plug -4- to lambda probe -G39-

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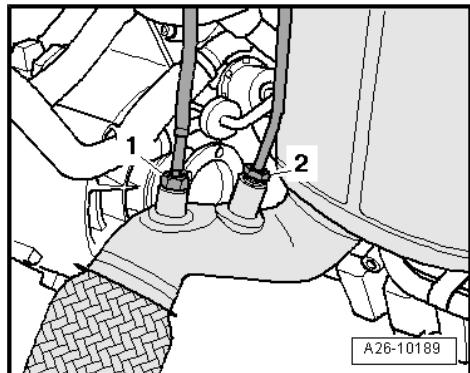


- Unscrew lambda probe -3-.
- Remove exhaust gas temperature sender 2 - G448- (temperature sender upstream particle filter - G506-) -5-.
- Unbolt bracket -2- for pressure lines.
- Unbolt pressure line -4- at diesel particle filter.
- Remove fixing clamp -1- for diesel particle filter.
- Remove noise insulation ⇒ Body Work; Rep. gr. 50 and right wheelhouse liner ⇒ Body Work; Rep. gr. 66 .
- Disconnect plug from oil level and oil temperature sender - G266-
⇒ “1.1 Lubrication system - Summary of components”,
page 172 .

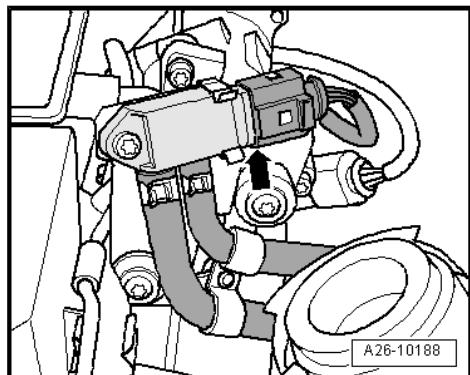




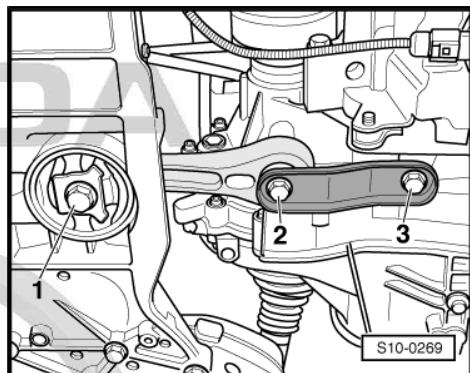
- Unscrew exhaust gas temperature sender 3 - G495- (temperature sender downstream particle filter - G527-) -1- from exhaust pipe downstream diesel particle filter.
- Unscrew pressure line -2- for exhaust gas pressure sensor 1 -G450- .



- Disconnect plug -arrow- for remove exhaust gas pressure sensor 1 -G450- with pressure lines.
- Unscrew the right drive shaft from the gearbox flange.

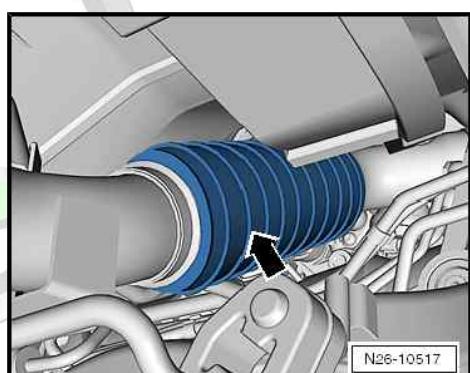


- Release screws -1...3- and remove pendulum support.
- Remove drive shaft screening from the engine (if present).
- Remove front tunnel bridge -11-
 - ⇒ [“1.1.2 Summary of components for engine with identification characters BLS”, page 382](#)



Note

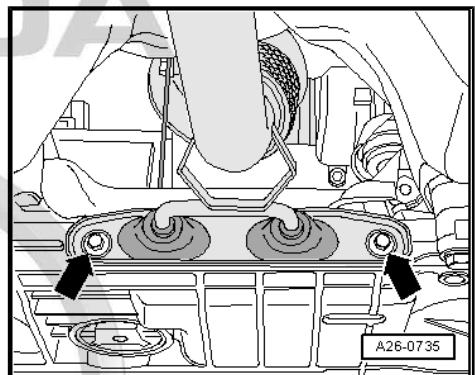
- ◆ The decoupling element in the pre-exhaust pipe should not be bent by more than 10° - risk of damage.
- ◆ Secure the decoupling element with the transport security - T10404- against overtensioning -arrow-.
- Slacken nuts of clamping sleeve -10-
 - ⇒ [“1.1.2 Summary of components for engine with identification characters BLS”, page 382](#) .



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- Unscrew hanger of exhaust system -arrows-.
- Slacken trim panels for the underfloor ⇒ Body Work; Rep. gr. 50 .
- Undo the retaining strap on the rear silencer -12-
⇒ [“1.1.2 Summary of components for engine with identification characters BLS”, page 382](#) .
- Unscrew tunnel-heat shield and slide it to the fuel tank ⇒ Body Work; Rep. gr. 50 .



- Release screws -arrows- at holder for diesel particle filter.
- Remove the pre-exhaust pipe with diesel particle filter by turning clockwise 180°; to do so slightly press the engine/gearbox towards the front.

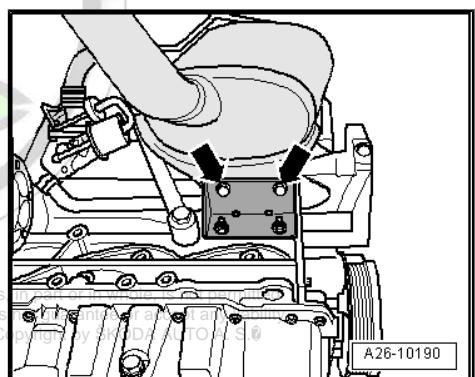
Install

- Installation is carried out in the reverse order. Pay attention to the following:



Note

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- ◆ Replace the gaskets and the self-locking nuts.
- ◆ Secure all hose connections with corresponding hose clips.
- ◆ All cable straps which are detached when removing, should be attached again in the same place when installing.
- Observe the assembly instruction for hose connections with push-fit couplings
⇒ [“2.11.1 Assembly of hose connections with push-fit couplings”, page 334](#) .
- Align exhaust system free of stress
⇒ [“1.11 Fitting exhaust system free of stress \(Superb II\)”, page 408](#) .
- After replacing the diesel particle filter, an adaption must be performed in the function “Targeted functions” ⇒ Vehicle diagnostic tester.

1.6 Removing and installing pre-exhaust pipe with diesel particle filter (Octavia II)

Special tools and workshop equipment required

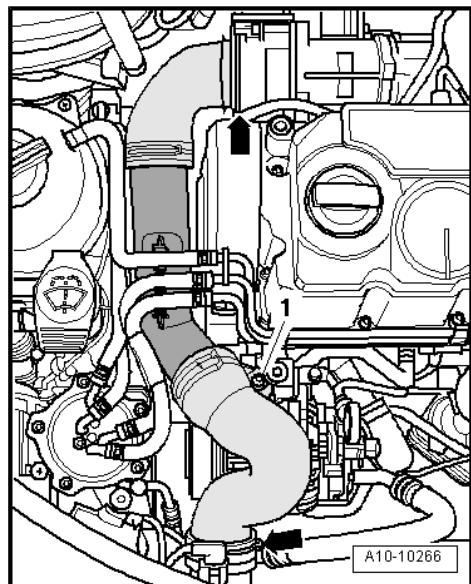
- ◆ Pliers for spring strap clamps
- ◆ Ring spanner set for lambda probe
- ◆ Set of tools 17 mm - T10395-
- ◆ Hot screw paste - G 052 112 A3-

Removing

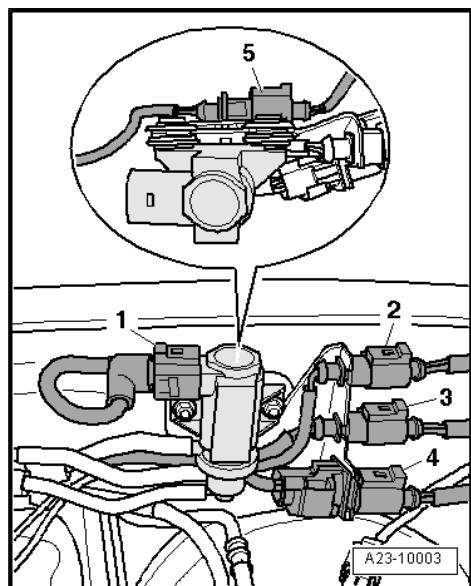
- Remove engine cover.



- Release fuel hoses and coolant hoses at right air guide pipe.
- Remove right air guide pipe.
- Remove intake manifold flap motor -V157-
 ⇒ “1.3.2 Summary of components for engine with identification characters BXE, BKC, AXR, BSW”, page 362 .
- Remove exhaust gas recirculation valve -N18- with EGR potentiometer -G212- and EGR control motor -V338-
 ⇒ “1.3.3 Summary of components for engine with identification characters BLS”, page 363 .



- Disconnect el. plug -4- to lambda probe -G39- .



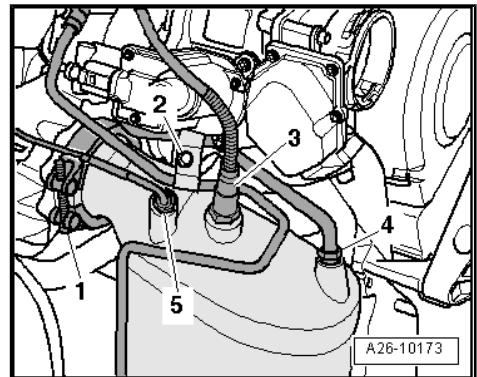
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- Unscrew lambda probe -3-.
 - Remove exhaust gas temperature sender 2 - G448- (temperature sender upstream particle filter - G506-) -5-.
 - Unbolt bracket -2- for pressure lines.
 - Unbolt pressure line -4- at diesel particle filter.
 - Remove fixing clamp -1- for diesel particle filter.
 - Remove right front wheel.
 - Remove noise insulation ⇒ Body Work; Rep. gr. 50 and right wheelhouse liner ⇒ Body Work; Rep. gr. 66 .



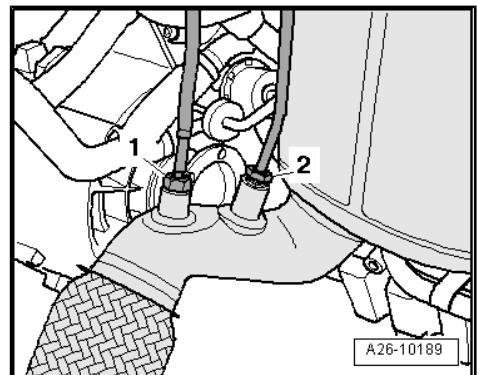
On vehicles with auxiliary heating.

- Remove exhaust pipe from the auxiliary heating (only for vehicles with extended exhaust pipe) ⇒ Heating, Air Conditioning; Rep. gr. 82 .

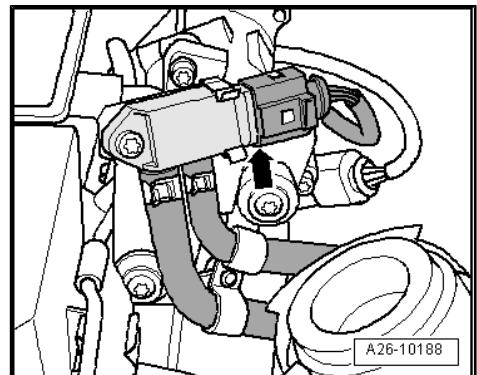
Continued for all vehicles

- Disconnect plug from oil level and oil temperature sender - G266-
⇒ **“1.1 Lubrication system - Summary of components”**,
page 172 .
 - Unscrew exhaust gas temperature sender 3 - G495- (temperature sender downstream particle filter - G527-) -1- from exhaust pipe downstream diesel particle filter.
 - Unscrew pressure line -2- for exhaust gas pressure sensor 1

**– Unscrew pressure line -2- for exhaust gas pressure sensor 1
-G450-.** SKODA AUTO A. S. SKODA AUTO A. S. does not guarantee or accept any liability
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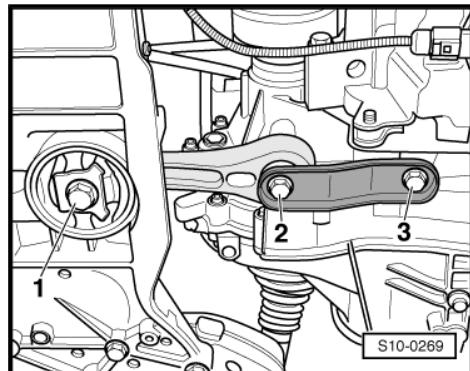


- Disconnect plug -arrow- for remove exhaust gas pressure sensor 1 -G450- with pressure lines.
 - Unscrew the right drive shaft from the gearbox flange.

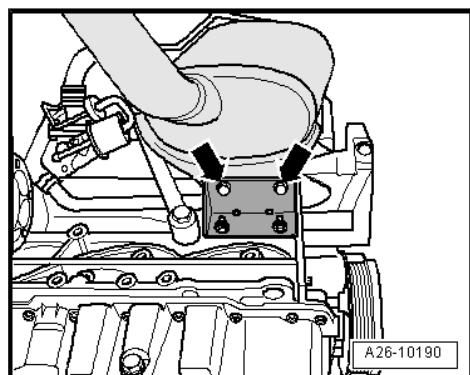




- Release screws -1...3- and remove pendulum support.



- Release screws -arrows- at holder for diesel particle filter.
- Remove drive shaft screening from the engine (if present).



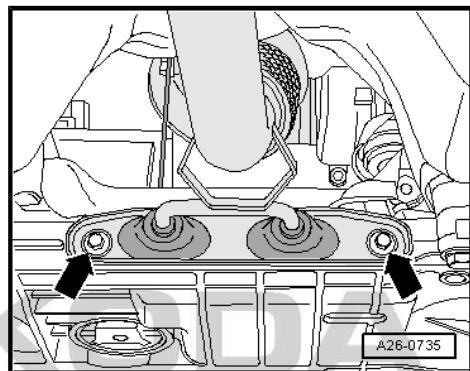
- Unscrew hanger of exhaust system -arrows-.

For vehicles with four-wheel drive

- Remove the assembly carrier ⇒ Chassis ; Rep. gr. 40
- Undo and tie up the propshaft from the angle gearbox ⇒ Gearbox; Rep. gr. 34 .

Continued for all vehicles

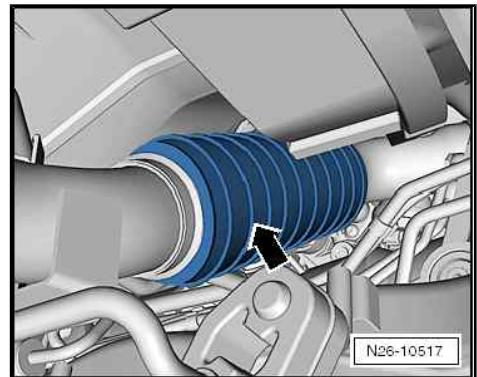
- Remove front tunnel bridge.





Note

- ◆ The decoupling element in the pre-exhaust pipe should not be bent by more than 10° - risk of damage.
- ◆ Secure the decoupling element with the transport security - T10404- against overtensioning -arrow-.
- Slacken nuts of clamping sleeve.



N26-10517



Note

When removing the diesel particle filter slightly raise the heat shield, in order to avoid damage.

- Remove pre-exhaust pipe with diesel particle filter, to do so slightly push the engine/gearbox assembly to the front.

Install

- Installation is carried out in the reverse order. Pay attention to the following:



Note

- ◆ Replace the gaskets and the self-locking nuts.
- ◆ Secure all hose connections with corresponding hose clips.
- ◆ All cable straps which are detached when removing, should be attached again in the same place when installing.
- Observe the assembly instruction for hose connections with push-fit couplings
 ⇒ [“2.11.1 Assembly of hose connections with push-fit couplings”, page 334](#).
- Align exhaust system free of stress
 ⇒ [“1.12 Aligning exhaust system free of stress \(Octavia II\)”, page 409](#).
- After replacing the diesel particle filter, an adaption must be performed in the function “Targeted functions” ⇒ Vehicle diagnostic tester.

1.7 Removing and installing pre-exhaust pipe for vehicles with four-wheel drive (Octavia II)

Special tools and workshop equipment required

- ◆ Pliers for spring strap clamps

Removing

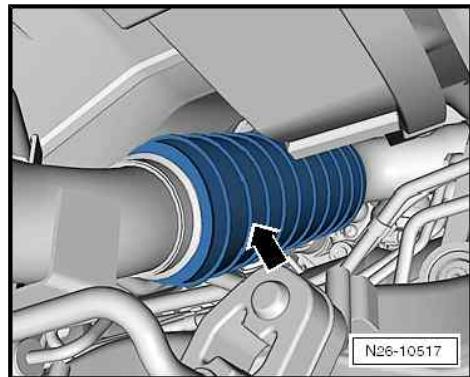
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- Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
- Unscrew the right drive shaft from the gearbox flange.
- Remove drive shaft screening from the engine (if present).
- Remove propshaft ⇒ Gearbox; Rep. gr. 39 .



Note

- ◆ The decoupling element in the pre-exhaust pipe should not be bent by more than 10° - risk of damage.
- ◆ Secure the decoupling element with the transport security - T10404 - against overtensioning -arrow-.
- Remove fixing clamp for exhaust turbocharger with pre-exhaust pipe.
- Remove support between pre-exhaust pipe and gearbox.
- Loosen nuts of clamping sleeve Pos. -5-
 - ⇒ ["1.2.3 Summary of components for engine with identification characters BKC, BXE on vehicles with four-wheel drive", page 387](#).
- Unscrew hanger of exhaust system -arrows-.
- Remove pre-exhaust pipe.

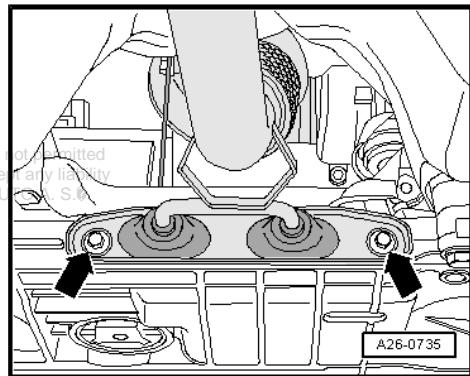


Install

- Installation is carried out in the reverse order. Pay attention to the following:

Note

- ◆ Replace the gaskets and the self-locking nuts.
- ◆ Secure all hose connections with corresponding hose clips.
- ◆ All cable straps which are detached when removing, should be attached again in the same place when installing.
- Observe the assembly instruction for hose connections with push-fit couplings
 - ⇒ ["2.11.1 Assembly of hose connections with push-fit couplings", page 334](#).
- Align exhaust system free of stress
 - ⇒ ["1.12 Aligning exhaust system free of stress \(Octavia II\)", page 409](#).



1.8 Removing and installing pre-exhaust pipe with diesel particle filter (Fabia II, Roomster)

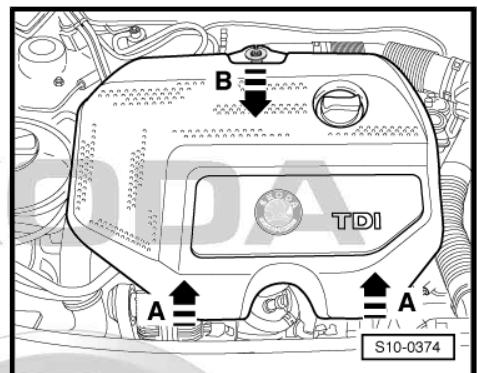
Special tools and workshop equipment required

- ◆ Set of tools 17 mm - T10395-
- ◆ Pliers for spring strap clamps

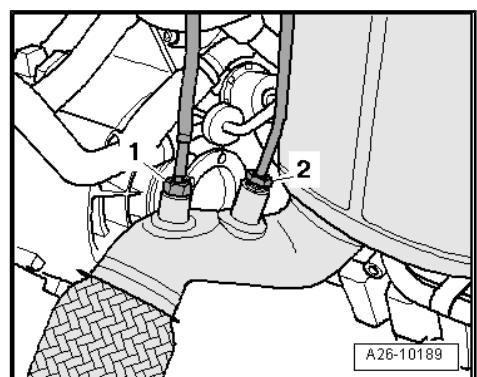
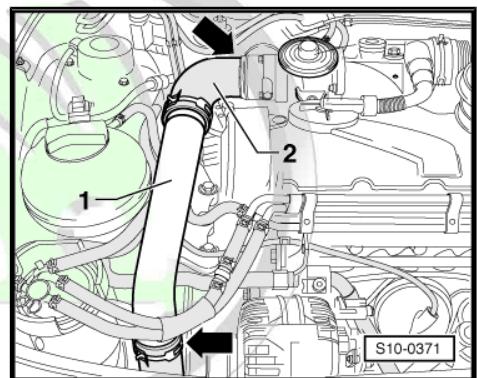


Removing

- Lift the engine cover at the sides -arrows A- and pull out towards the front -arrow B-.

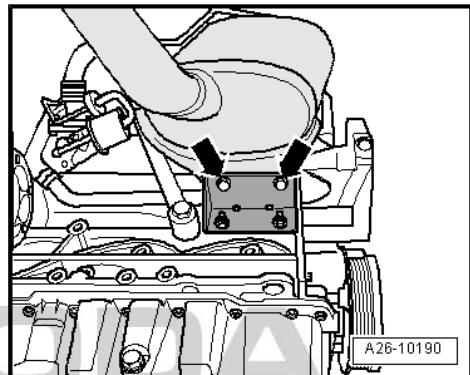


- Removing top right charge air pipe.
- Remove intake manifold flap motor -V157-
⇒ [“1.3.3 Summary of components for engine with identification characters BLS”, page 363](#).
- Unscrew bracket with pressure sensor 1 for exhaust gas - G450- .
- Remove cylinder head cover
⇒ [“1.3 Removing and installing cylinder head cover \(Fabia II, Roomster\)”, page 118](#) .
- Remove connection fitting with EGR valve -N18- , EGR potentiometer -G212- and EGR control motor -V338-
⇒ [“2.8 Removing and installing exhaust gas recirculation valve N18 for engine with identification characters BLS \(Fabia II, Roomster\)”, page 425](#) .
- Remove the exhaust gas temperature sender 2 - G448- (temperature sender upstream particle filter - G506-) using the set of tools T10395 .
- Unbolt pressure line at diesel particle filter.
- Unscrew heat shield.
- Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
- Release assembly carrier in the service position and align ⇒ Chassis; Rep. gr. 40 .
- Remove propeller-shaft guard from engine.
- Unscrew the exhaust gas temperature sender 3 - G495- (temperature sender downstream particle filter - G527-) -1- from the exhaust pipe behind the diesel particle filter using the set of tools T10395 .
- Unscrew pressure line -2- for exhaust gas pressure sensor 1 -G450- .
- Disconnect el. plug to lambda probe -G39- , to temperature sender upstream and downstream diesel particle filter.
- Unscrew lambda probe -G39- .
- Take out pressure line with pressure sensor 1 for exhaust - G450- and heat shield.
- Remove retaining clip for diesel particle filter.
- Unscrew screw between top support and diesel particle filter.





- Release screws -arrows- at holder for diesel particle filter.
- Slacken nuts of clamping sleeve.

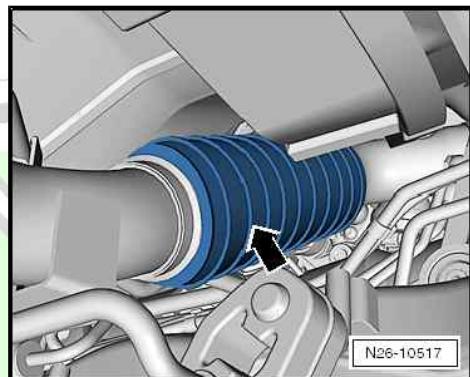


 Note

- ◆ The decoupling element in the pre-exhaust pipe should not be bent by more than 10° - risk of damage.
- ◆ Secure the decoupling element with the transport security - T10404- against overtensioning -arrow-.
- Unscrew clamp of retaining strap for exhaust system.
- Remove pre-exhaust pipe with diesel particle filter.

Install

- Installation is carried out in the reverse order. Pay attention to the following:



 Note

- ◆ Replace the gaskets and the self-locking nuts.
- ◆ Secure all hose connections with corresponding hose clips.
- ◆ All cable straps which are detached when removing, should be attached again in the same place when installing.
- Observe the assembly instruction for hose connections with push-fit couplings
⇒ "2.11.1 Assembly of hose connections with push-fit couplings", page 334 .
- Align exhaust system free of stress
⇒ "1.13 Fitting exhaust system free of stress (Fabia II, Roomster)", page 410 .
- After replacing the diesel particle filter, an adaption must be performed in the function "Targeted functions" ⇒ Vehicle diagnostic tester.

1.9 Replacing middle and rear silencer (Octavia II)

For separating the middle or rear silencer, a separation point is provided in the connecting pipe, which is marked with a recess.

Special tools and workshop equipment required

- ◆ Body saw e.g. -V.A.G 1523/A-
- ◆ Protective goggles



Work procedure



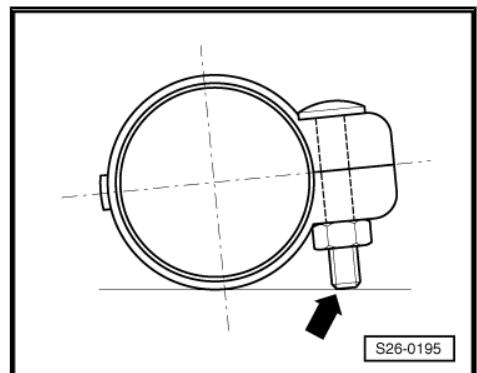
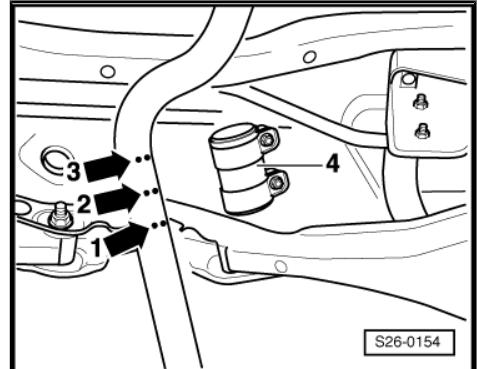
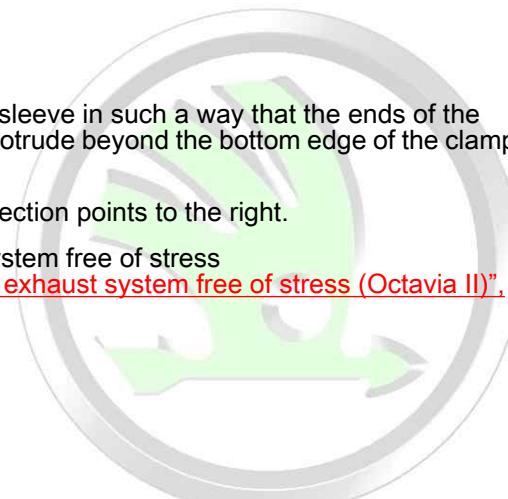
WARNING

Wear safety goggles.

- Separate exhaust pipe at the separation point -arrow 2- with body saw -V.A.G 1523 A- at right angle.
- When installing, position clamping sleeve -4- at the side markings arrow -1- and arrow -3-.

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- Install clamping sleeve in such a way that the ends of the screws do not protrude beyond the bottom edge of the clamping sleeve.
- The bolted connection points to the right.
- Align exhaust system free of stress
⇒ "1.12 Aligning exhaust system free of stress (Octavia II)", page 409 .



1.10 Replacing middle and rear silencer (Fabia II, Roomster)

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Special tools and workshop equipment required

- ◆ Body saw e.g. -V.A.G 1523 A-
- ◆ Protective goggles

Work procedure

For separating the middle and rear silencer, a separation point is provided in the connecting pipe, which is marked with a recess.

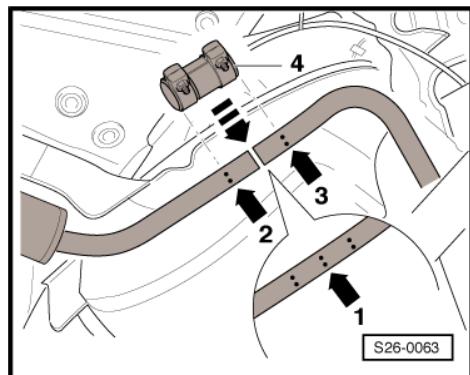


WARNING

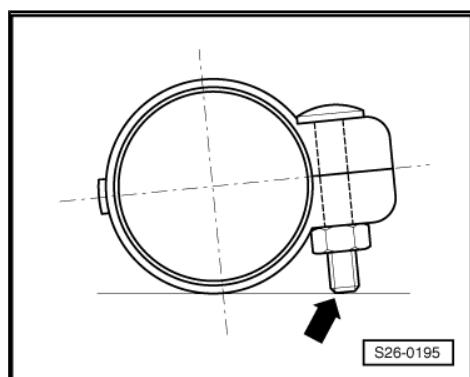
Wear safety goggles.



- Separate exhaust pipe at the separation point -arrow 1- with body saw (e.g. -V.A.G 1523 A-) at a right angle.
- When installing, position clamping sleeve -4- at the side markings arrow -2- and arrow -3-.

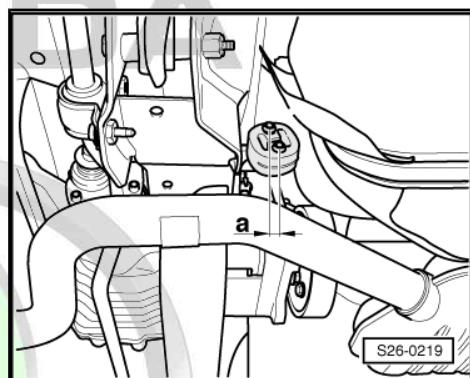


- Install clamping sleeve in such a way that the ends of the screws do not protrude beyond the bottom edge of the clamping sleeve.
- Align exhaust system free of stress
⇒ "1.13 Fitting exhaust system free of stress (Fabia II, Roomster)", page 410 .
- Tighten bolted connections of clamping sleeve evenly to 23 Nm.
- The bolted connection points to the right.



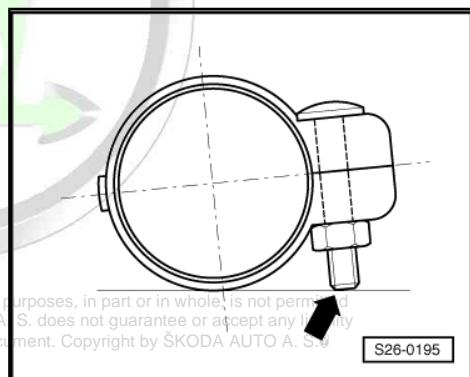
1.11 Fitting exhaust system free of stress (Superb II)

- The exhaust system is aligned when cold.
- Slacken bolted connections of clamping sleeve between front and middle silencer:
- ◆ Engine identification characters BXE
⇒ "1.1.1 Summary of components for engine with identification characters BXE", page 380 Pos. -5-.
- ◆ Engine identification characters BLS
⇒ "1.1.2 Summary of components for engine with identification characters BLS", page 382 Pos. -5-.
- Push the rear silencer so far forward until the dimension -a- = 7 ... 9 mm is achieved between hanger/body and hanger/rear silencer.



Continued for all vehicles

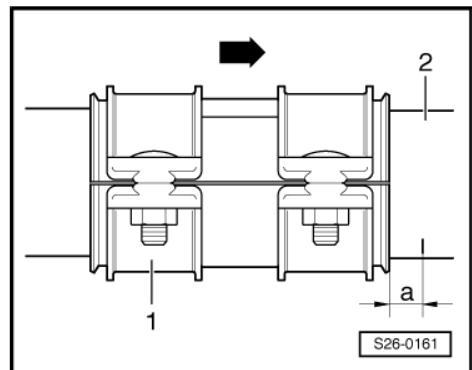
- Install clamping sleeve in such a way that the ends of the screws do not protrude beyond the bottom edge of the clamping sleeve.
- The bolted connection points to the right.



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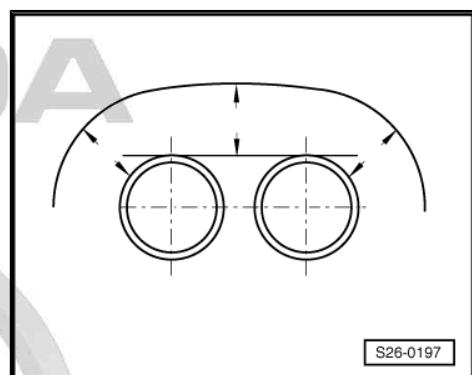


- Push the clamping sleeve -1- to the dimension $-a- = 5 \text{ mm}$ in front of the marking at the pre-exhaust pipe -2-.
- Tighten bolted connections of clamping sleeve evenly to 25 Nm.



Align exhaust tailpipe

- Align rear silencer in such a way that there is an equal distance $-a-$ and $-b-$ between bumper opening and exhaust tailpipes.
- For aligning the exhaust tailpipes, if necessary loosen hanger on the rear silencer.

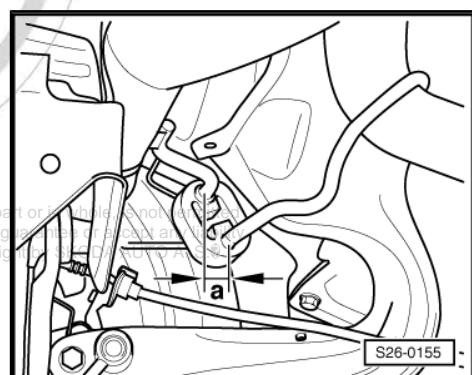


1.12 Aligning exhaust system free of stress (Octavia II)

- The exhaust system is aligned when cold.

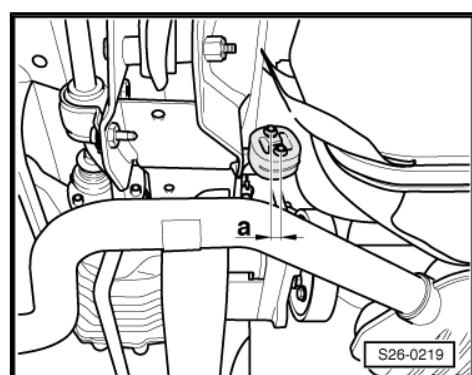
Vehicles with front-wheel-drive

- Slacken nuts of clamping sleeve -12-
 ⇒ “1.2.1 Summary of components for engine with identification characters BJB, BKC, BXE on vehicles with front-wheel drive”, page 384 between front and middle silencer.
- Push the rear silencer so far forward until the dimension $-a- = 9 \dots 11 \text{ mm}$ is achieved between hanger/body and hanger/middle silencer.



For vehicles with four-wheel drive

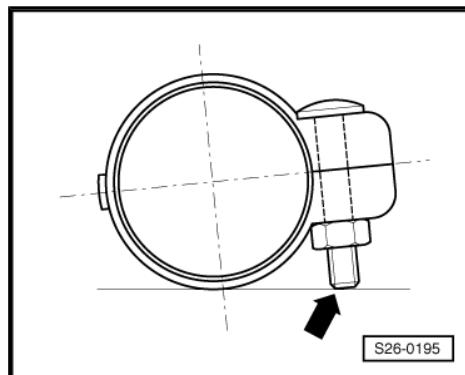
- Slacken nuts of clamping sleeve -5-
 ⇒ “1.2.3 Summary of components for engine with identification characters BKC, BXE on vehicles with four-wheel drive”, page 387 between front and rear silencer.
- Push the rear silencer so far forward until the dimension $-a- = 7 \dots 9 \text{ mm}$ is achieved between hanger/body and hanger/rear silencer.





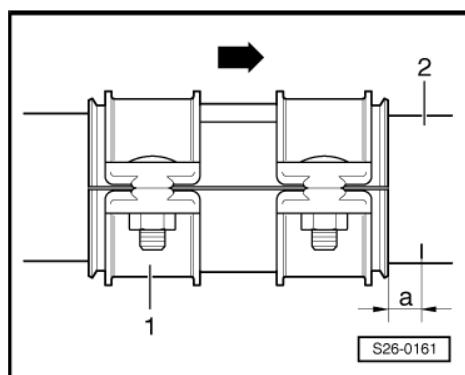
Continued for all vehicles

- Install clamping sleeve in such a way that the ends of the screws do not protrude beyond the bottom edge of the clamping sleeve.
- The bolted connection points to the right.



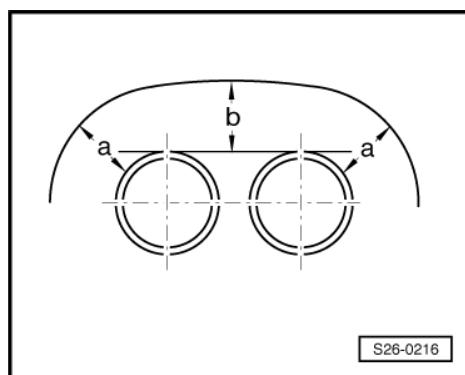
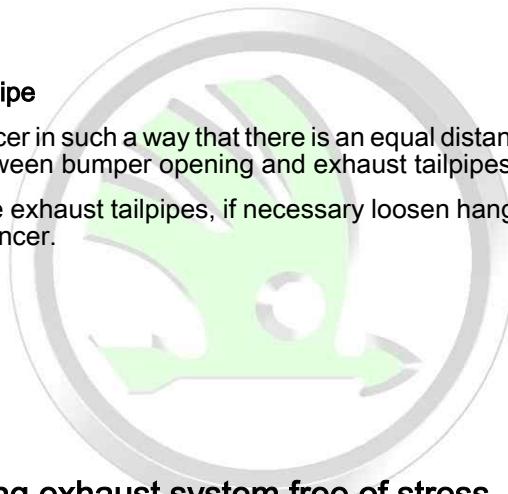
- Push the clamping sleeve -1- to the dimension -a- = 5 mm in front of the marking at the pre-exhaust pipe -2-.
- Tighten the nuts of the front clamping sleeve evenly to 23 Nm.

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Align exhaust tailpipe

- Align rear silencer in such a way that there is an equal distance -a- and -b- between bumper opening and exhaust tailpipes.
- For aligning the exhaust tailpipes, if necessary loosen hanger on the rear silencer.



1.13 Fitting exhaust system free of stress (Fabia II, Roomster)

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- The exhaust system is aligned when cold.
- Loosen bolted connections of clamping sleeve Pos. -7-
[⇒ "1.4.1 Summary of components for engine with identification characters AXR, BSW", page 393](#) between front and middle silencer.



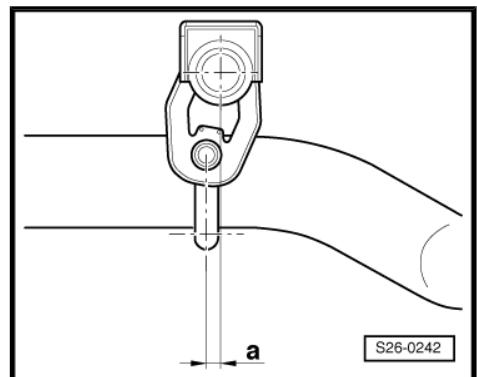
For vehicles Fabia II

- Push the rear silencer so far forward until the initial load $a = 2 \dots 5$ mm is achieved between hanger/middle silencer and hanger/rear silencer.

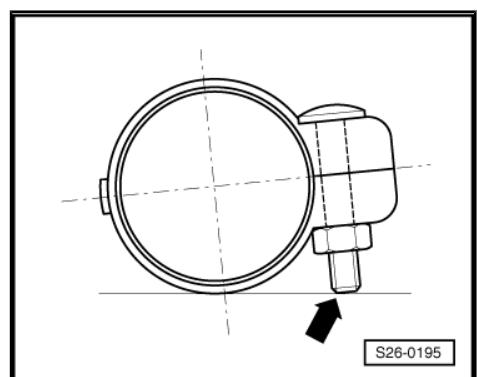
For vehicles Roomster

- Push the rear silencer so far forward until the initial load $a = 3 \dots 7$ mm is achieved between hanger/middle silencer and hanger/rear silencer.

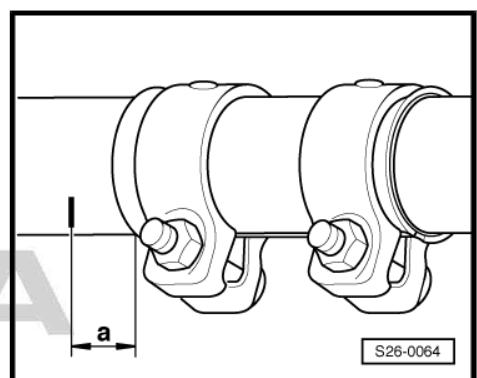
Continued for all vehicles



- Install clamping sleeve in such a way that the ends of the screws do not protrude beyond the bottom edge of the clamping sleeve.
- The bolted connection points to the right.



- Push clamping sleeve to the dimension $a = 5$ mm in front of the marking on the catalytic converter pipe and tighten bolted connections evenly to 23 Nm.



1.14 Inspecting the exhaust system for leak-tightness

- Start engine and run in idle.
- Seal off exhaust tailpipes of rear silencer for the duration of the leak check (e.g. with cloth or plug).
- Inspect connection points of cylinder head/exhaust manifold, exhaust gas turbocharger/pre-exhaust pipe etc. for leaktightness by listening.
- Eliminate any leak found.

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2 Exhaust gas recirculation system

- ⇒ “2.1 Summary of components - cooling for exhaust gas recirculation system (Octavia II, Superb II)”, page 412
- ⇒ “2.2 Summary of components - cooling for exhaust gas recirculation system (Fabia II, Roomster)”, page 415
- ⇒ “2.3 Removing and installing radiator for exhaust gas recirculation for engine with engine identification characters BKC, BXE (Octavia II, Superb II)”, page 418
- ⇒ “2.4 Removing and installing radiator for exhaust gas recirculation for engine with engine identification characters BLS (Octavia II, Superb II)”, page 421
- ⇒ “2.5 Removing and installing radiator for exhaust gas recirculation (Fabia II, Roomster)”, page 422
- ⇒ “2.6 Checking mechanical exhaust gas recirculation valve for engine with identification characters AXR, BSW, BJB, BKC, BXE”, page 424
- ⇒ “2.7 Checking the change-over flap of the radiator for exhaust gas recirculation for engine with engine identification characters BKC, BXE (Octavia II, Superb II)”, page 424
- ⇒ “2.8 Removing and installing exhaust gas recirculation valve N18 for engine with identification characters BLS (Fabia II, Roomster)”, page 425



Note

- ◆ The exhaust gas recirculation system is operated by the diesel direct injection system control unit -J248- via the EGR valve -N18- (except engine with identification characters BLS) integrated into the valve block to the mechanical exhaust gas recirculation valve.
- ◆ The mechanical exhaust gas recirculation valve with cone-shaped valve plunger makes it possible to achieve different opening cross-sections at different opening strokes.
- ◆ Any desired valve plunger position is possible as a result of the pulsed operation.
- ◆ The exhaust gas recirculation switches off at idling speed after about two minutes.
- ◆ When taking longer measurements, restart the engine or increase engine speed briefly to more than 1500 rpm. After this repeat the measurement.
- ◆ Secure all hose connections with corresponding hose clips.

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2.1 Summary of components - cooling for exhaust gas recirculation system (Octavia II, Superb II)

- ⇒ “2.1.1 Summary of components for engine with identification characters BXE, BKC ”, page 412
- ⇒ “2.1.2 Summary of components for engine with identification characters BLS”, page 414
- ⇒ “2.1.3 Summary of components for engine with engine identification characters BJB (Octavia II)”, page 415

2.1.1 Summary of components for engine with identification characters BXE, BKC

**1 - Screw**

- 22 Nm

2 - Intake manifold

- with mechanical exhaust gas recirculation valve and intake manifold flap motor -V157-

3 - Gasket

- Replace after disassembly

4 - Connecting pipe

- from the radiator flap to the mechanical exhaust gas recirculation valve

5 - Radiator

- for exhaust gas recirculation
- removing and installing
⇒ "2.3 Removing and installing radiator for exhaust gas recirculation for engine with engine identification characters BKC, BXE (Octavia II, Superb II)", page 418

6 - Screw

- 10 Nm

7 - Exhaust manifold

- with exhaust turbocharger

8 - Nut

- Coat thread with hot bolt paste -G 052/112 A3-

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- 25 Nm

9 - Connecting pipe

- from exhaust manifold to radiator flap for exhaust gas recirculation

10 - Change-over flap of radiator

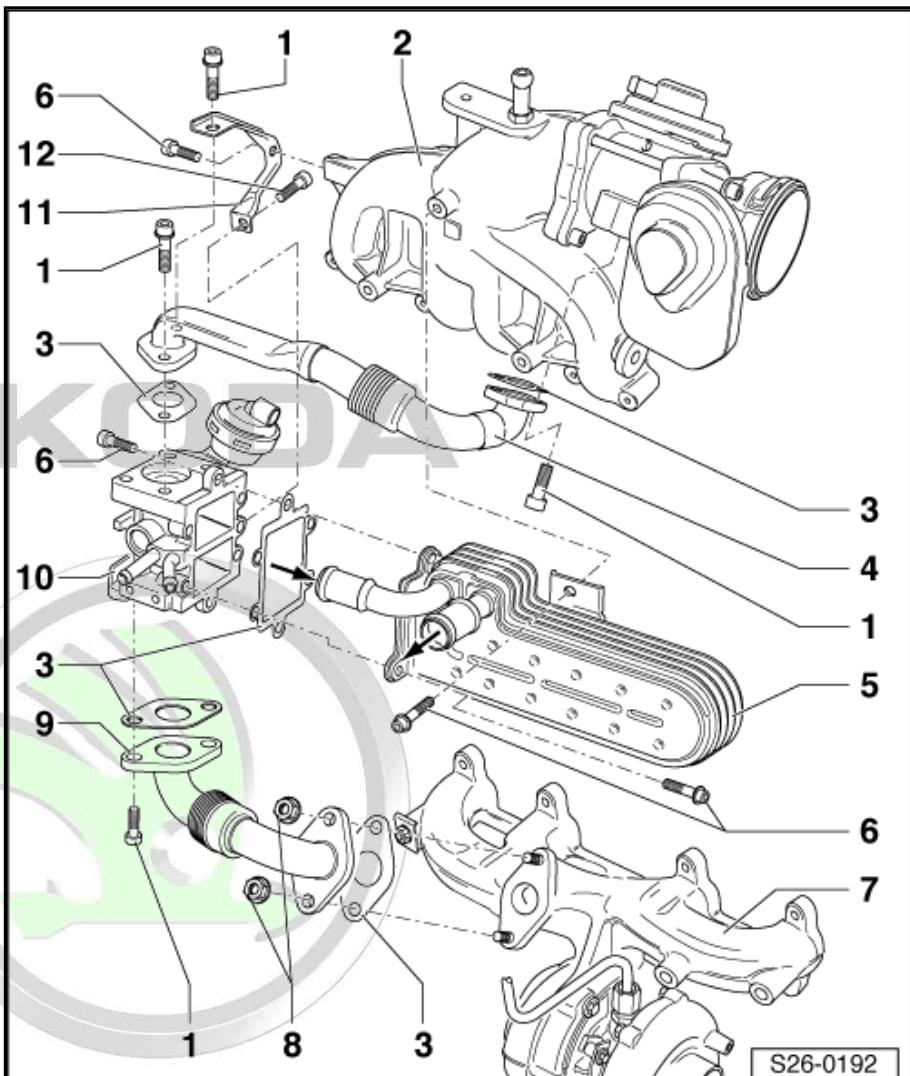
- when actuating the exhaust gas recirculation radiator change-over valve -N345- the exhaust gases are guided via the radiator

11 - Support

- for change-over flap of radiator

12 - Screw

- 5 Nm



S26-0192



2.1.2 Summary of components for engine with identification characters BLS



Note

The actuation of the exhaust gas recirculation system is performed by the engine control unit -J248- for the EGR valve -N18- with EGR potentiometer -G212- and EGR control motor -V338-.

1 - Coolant hose

- to connection fitting
- connection diagram for coolant hoses
[⇒ "1.1.2 Summary of components for engine with identification characters BLS", page 188](#)

2 - Gasket

- Replace after disassembly

3 - Screw

- 22 Nm

4 - Connecting pipe

5 - from exhaust manifold

6 - Nut

- Replace after disassembly
- 25 Nm

7 - to connection of exhaust gas recirculation valve -N18-

8 - Radiator

- for exhaust gas recirculation
- removing and installing
[⇒ "2.4 Removing and installing radiator for exhaust gas recirculation for engine with engine identification characters BLS \(Octavia II, Superb II\)", page 421](#)

9 - Screw

- 10 Nm

10 - Coolant hose

- from the coolant pipe at the rear
- connection diagram for coolant hoses
[⇒ "1.1.2 Summary of components for engine with identification characters BLS", page 188](#)

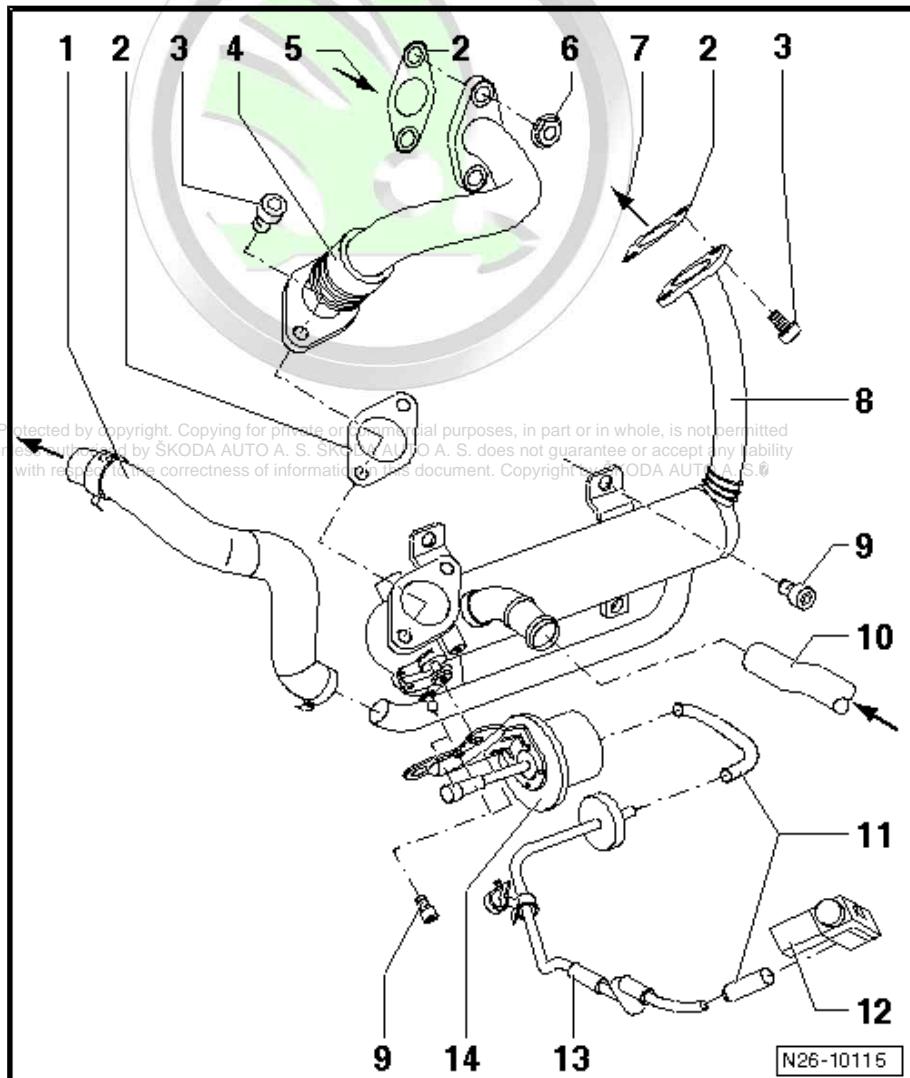
11 - Connecting hose

12 - Changeover valve for radiator of exhaust gas recirculation -N345-

13 - Connecting pipe

14 - Vacuum setting element

- for recirculation flap
- always replace together with radiator for exhaust gas recirculation



N26-10115



Connection diagram [⇒ "1.1.2 Engine with identification characters BLS", page 294](#)

2.1.3 Summary of components for engine with engine identification characters BJB (Octavia II)

1 - Intake manifold

- with mechanical exhaust gas recirculation valve and intake manifold flap

2 - from charge-air cooler

3 - Gasket

- Replace after disassembly

4 - Screw

- 22 Nm

5 - Exhaust manifold

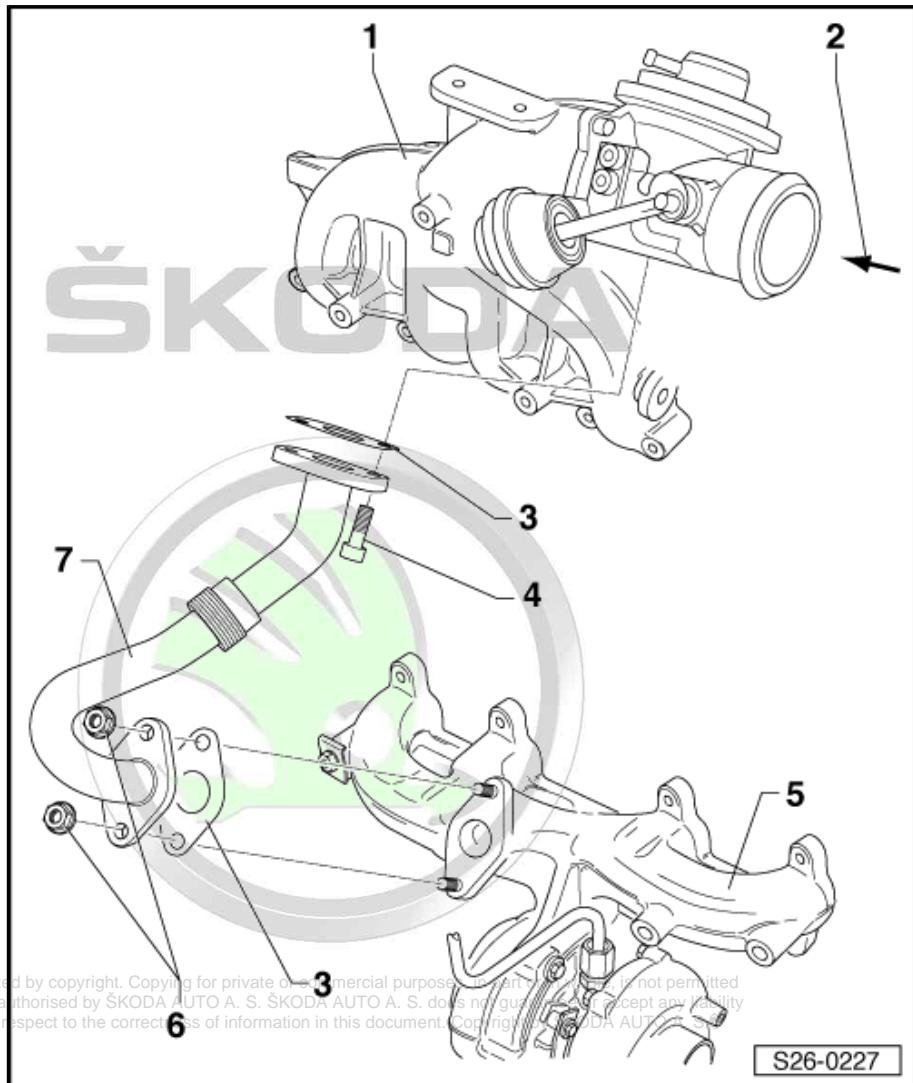
- with exhaust turbocharger

6 - Nut

- Coat thread with hot bolt paste -G 052 112 A3
- 25 Nm

7 - Connecting pipe

- for exhaust gas recirculation



2.2 Summary of components - cooling for exhaust gas recirculation system (Fabia II, Roomster)

[⇒ "2.2.1 Summary of components for engine with identification characters AXR, BSW", page 416](#)

[⇒ "2.2.2 Summary of components for engine with identification characters BLS", page 417](#)



2.2.1 Summary of components for engine with identification characters AXR, BSW



Note

The exhaust gas recirculation system is operated by the engine control unit -J623- via the EGR valve -N18- integrated into the valve block to the mechanical exhaust gas recirculation valve.

1 - Intake manifold

2 - O-ring

- Replace after disassembly

3 - Inlet connection

- With mechanical exhaust gas recirculation valve and control flap
- Testing mechanical exhaust gas recirculation valve
⇒ "2.6 Checking mechanical exhaust gas recirculation valve for engine with identification characters AXR, BSW, BJB, BKC, BXE", page 424

4 - Screw

- 10 Nm

5 - Gasket

- Replace after disassembly

6 - Screw

- 25 Nm

7 - Radiator for exhaust gas recirculation

8 - Screw

- 10 Nm

9 - Gasket

- Replace after disassembly

10 - Exhaust manifold

11 - Nut

- Replace after disassembly
- Coat stud bolts with -G 052 112 A3-
- 25 Nm

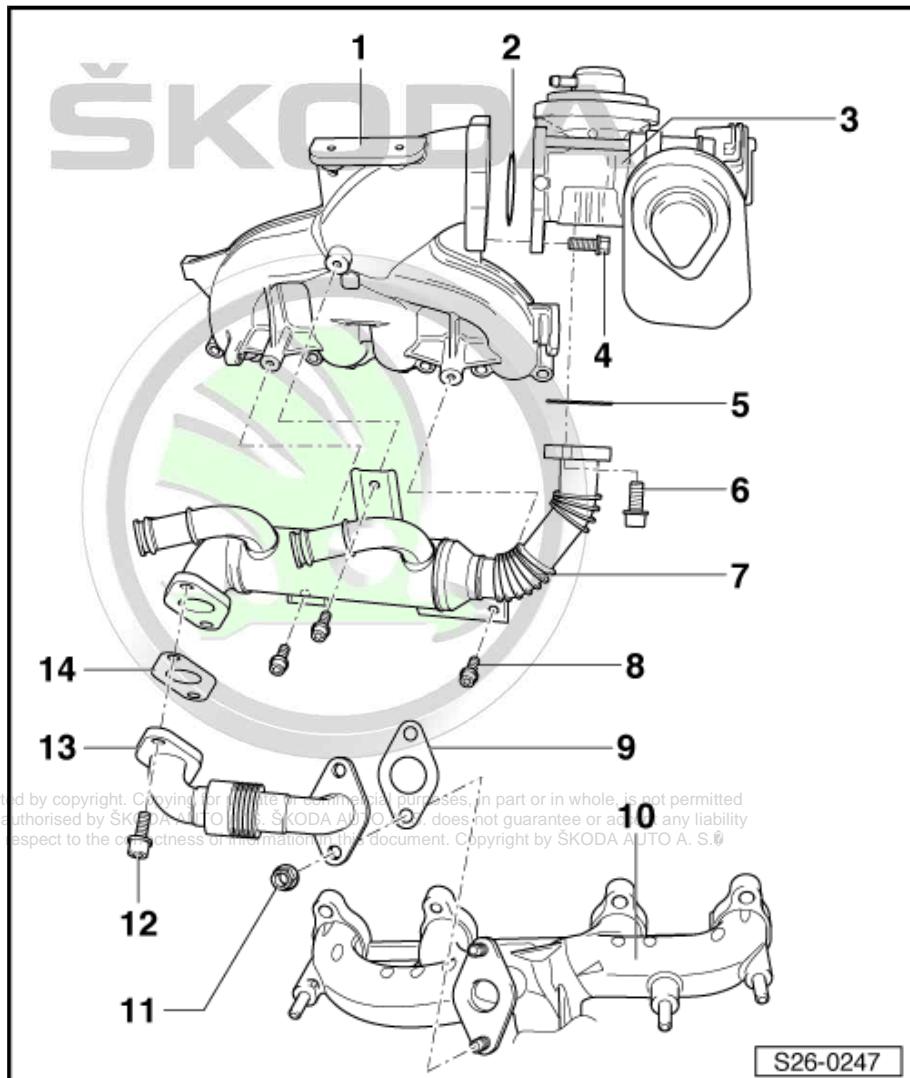
12 - Screw

- 25 Nm

13 - Connecting pipe

14 - Gasket

- Replace after disassembly



S26-0247



2.2.2 Summary of components for engine with identification characters BLS

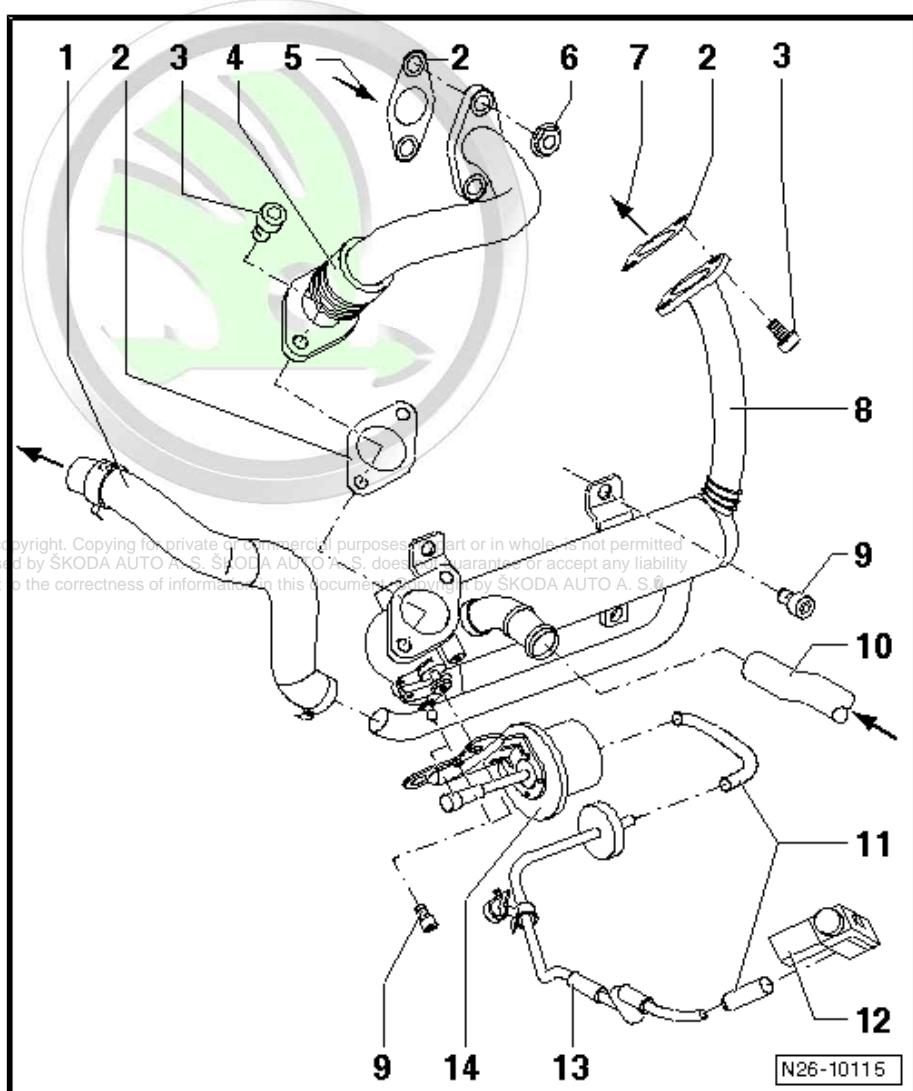


Note

The actuation of the exhaust gas recirculation system is performed by the engine control unit -J623- for the EGR valve -N18- with EGR potentiometer -G212- and EGR control motor -V338-.

1 - Coolant hose

- to connection fitting
- connection diagram for coolant hoses
⇒ [“1.3.2 Engine with identification characters BLS”, page 195](#)



2 - Gasket

- Replace after disassembly

3 - Screw

- 22 Nm

4 - Connecting pipe

5 - from exhaust manifold

6 - Nut

- Replace after disassembly
- 25 Nm

7 - to connection of exhaust gas recirculation valve -N18-

8 - Radiator

- for exhaust gas recirculation
- removing and installing
⇒ [“2.5 Removing and installing radiator for exhaust gas recirculation \(Fabia II, Roomster\)”, page 422](#)

9 - Screw

- 10 Nm

10 - Coolant hose

- from the coolant pipe at the rear
- connection diagram for coolant hoses ⇒ [“1.3.2 Engine with identification characters BLS”, page 195](#)

11 - Connecting hose

12 - Changeover valve for radiator of exhaust gas recirculation -N345-

13 - Connecting pipe

14 - Vacuum setting element

- for recirculation flap
- always replace together with radiator for exhaust gas recirculation
- Connection diagram ⇒ [“1.3.2 Engine with identification characters BLS”, page 301](#)



2.3 Removing and installing radiator for exhaust gas recirculation for engine with engine identification characters BKC, BXE (Octavia II, Superb II)



Note

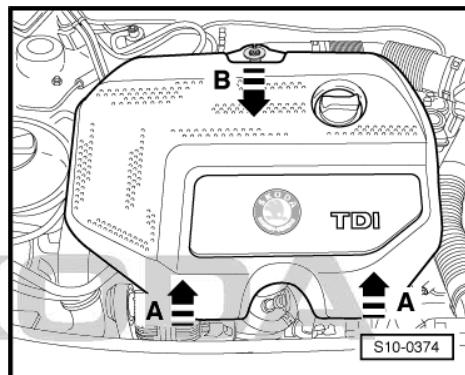
The exhaust gas recirculation system is fitted with a radiator through which the coolant flows, in order to improve the exhaust values.

Special tools and workshop equipment required

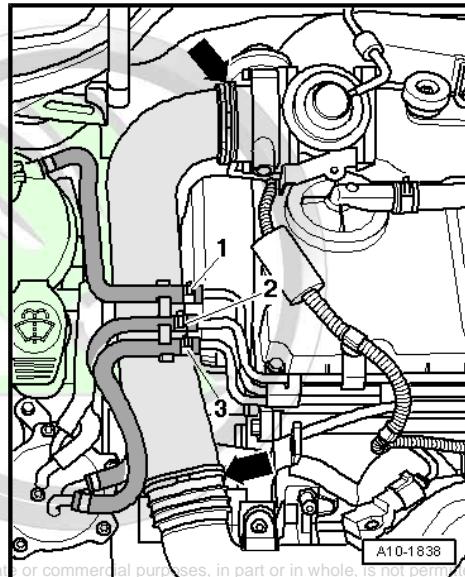
- ◆ Hose clamps - MP7-602 (3094)-
- ◆ Catch pan , e.g. -VAS 6208-
- ◆ Pliers for spring strap clamps

Removing

- Lift the engine cover at the sides -arrows A- and pull out towards the front -arrow B-.



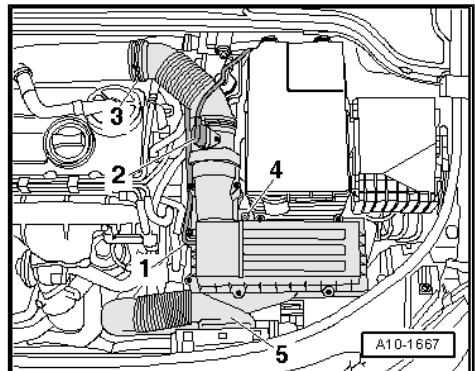
- Undo cables -1 ... 3- from the top charge-air pipe.
- Undo top charge-air pipe -arrows-.



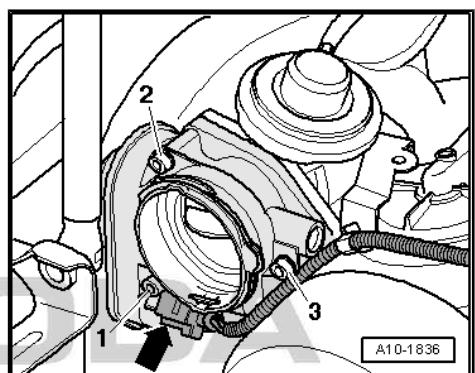
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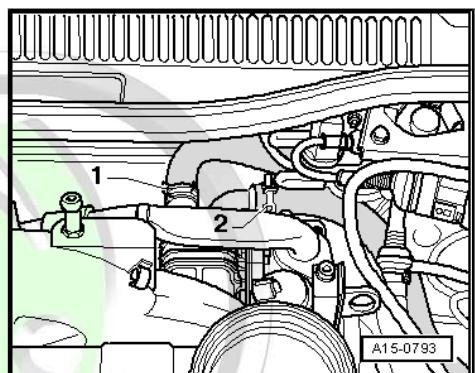
- Unplug connector -2- from air mass meter - G70- .
- Remove air filter -4-.



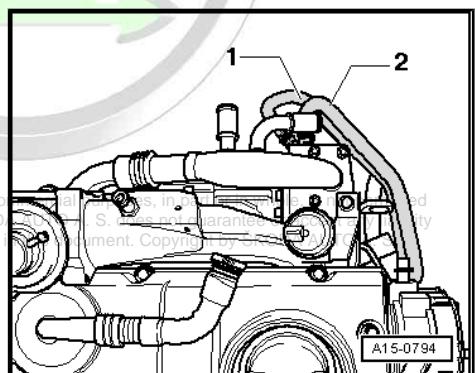
- Unplug plug -arrow- from intake manifold flap motor - V157- .
- Unscrew screws -1 ... 3- and remove intake manifold flap motor - V157- .



- Close off the coolant hoses -1- and -2- to the radiator for exhaust gas recirculation with hose clamps - MP7-602 (3094)- .
- Remove the coolant hoses -1- and -2- .



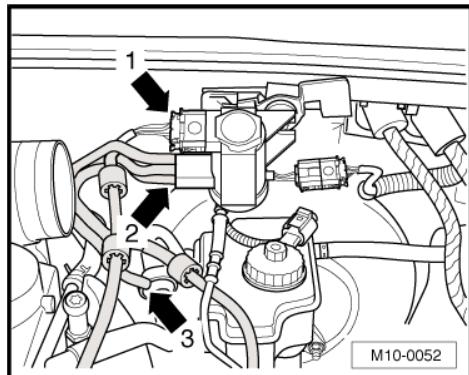
- Close off the coolant hoses -1- and -2- with hose clamps - MP7-602 (3094)- .
- Remove the coolant hoses -1- and -2- .



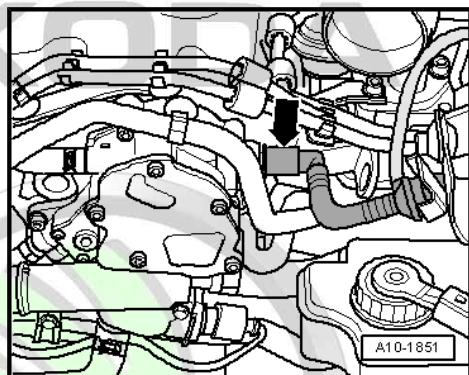
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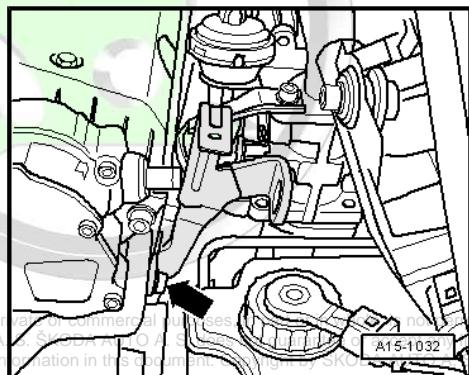
- Disconnect vacuum lines -2- and -3-.



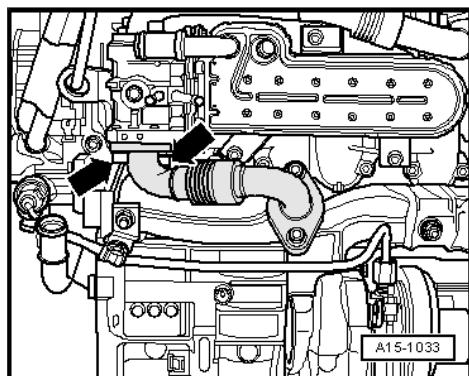
- Remove vacuum line from tandem pump -arrow-.



- Unscrew lifting eye from cylinder head -arrow-.

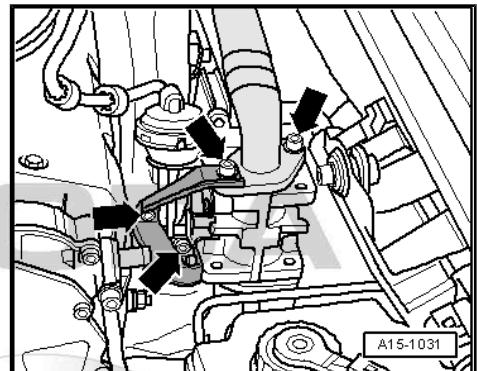


- Only unscrew lower connecting pipe at radiator for exhaust gas recirculation -arrows-.





- Release screws -arrows-.



- Release screws -arrows- and remove radiator for exhaust gas recirculation with exhaust gas recirculation valve.

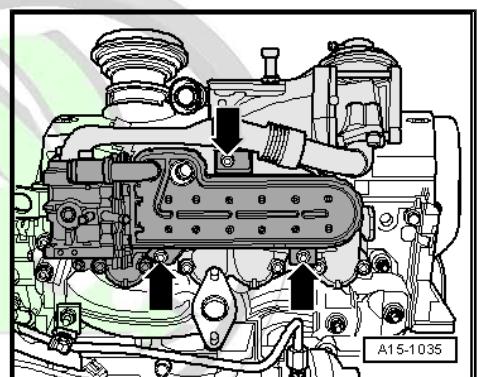
Install

Installation is carried out in the reverse order. Pay attention to the following:

- Top up with coolant
 ⇒ [“1.6 Drain and fill coolant \(Octavia II, Superb II\)”, page 205](#).



- ◆ Replace the gaskets and the self-locking nuts.
- ◆ Secure all hose connections with corresponding hose clips.



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2.4 Removing and installing radiator for exhaust gas recirculation for engine with engine identification characters BLS (Octavia II, Superb II)



The exhaust gas recirculation system is fitted with a radiator through which the coolant flows, in order to improve the exhaust values.

Special tools and workshop equipment required

- ◆ Catch pan , e.g. -VAS 6208-
- ◆ Pliers for spring strap clamps

Removing

- Remove pre-exhaust pipe with diesel particle filter:
 ◆ Octavia II
 ⇒ [“1.6 Removing and installing pre-exhaust pipe with diesel particle filter \(Octavia II\)”, page 399](#) .
- ◆ Superb II
 ⇒ [“1.5 Removing and installing pre-exhaust pipe with diesel particle filter \(Superb II\)”, page 396](#) .
- Drain coolant
 ⇒ [“1.6 Drain and fill coolant \(Octavia II, Superb II\)”, page 205](#) .
- Place a catch pan under the engine.

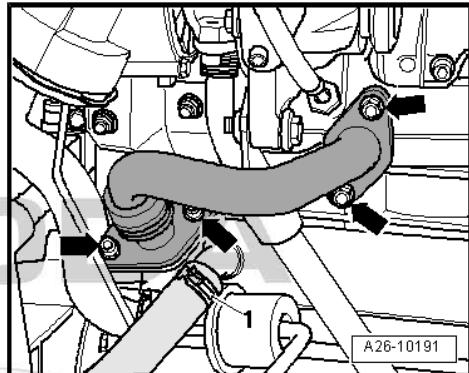


- Detach coolant hoses from radiator for exhaust gas recirculation.
- Unscrew connection pipe for exhaust gas recirculation radiator -arrows-.

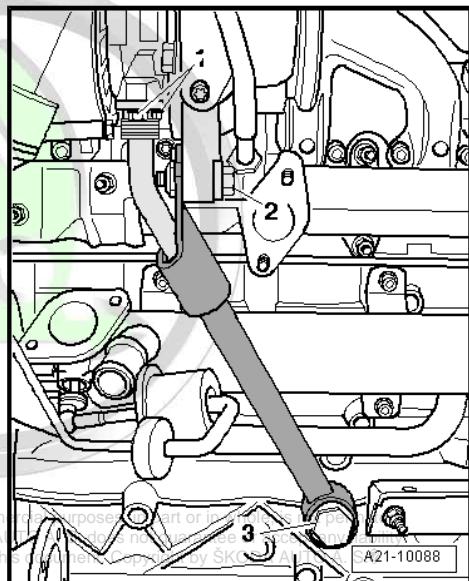
Vehicles with four-wheel drive

- Remove right flange shaft from angle gearbox ⇒ Gearbox; Rep. gr. 39 ⇒ Chapter "Replacing gasket ring for right flange shaft".

Continued for all vehicles



- Release screws -1-, screw -2- and the hollow screw -3-.
- Remove support for exhaust turbocharger with oil return line.



- Unbolt bracket -2- for diesel particle filter.
- Disconnect the vacuum line -1- and remove.
- Release screws -arrows- and remove radiator for exhaust gas recirculation.

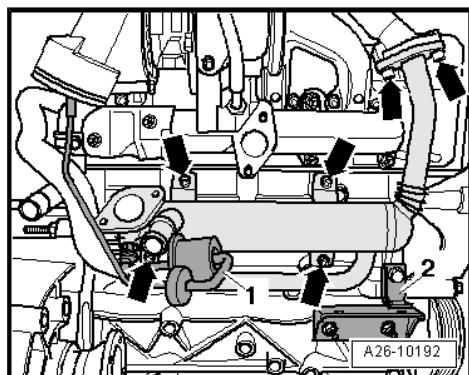
Install

- Installation is carried out in the reverse order. Pay attention to the following:



Note

- ◆ Replace the gaskets and the self-locking nuts.
- ◆ Secure all hose connections with corresponding hose clips.



2.5 Removing and installing radiator for exhaust gas recirculation (Fabia II, Roomster)

Special tools and workshop equipment required

- ◆ Catch pan , e.g. -VAS 6208-
- ◆ Hose clamps - T30096 (3093)-



- ◆ Pliers for spring strap clamps

Removing

For engine with engine code AXR, BSW

- Remove the pre-exhaust pipe from the exhaust turbocharger:
- ◆ Fabia II
⇒ [“1.3.1 Summary of components for engine with identification characters BSW”, page 390](#).
- ◆ Roomster
⇒ [“1.4.1 Summary of components for engine with identification characters AXR, BSW”, page 393](#).

For engine with engine code BLS

- Remove the pre-exhaust pipe with diesel particle filter from the exhaust gas turbocharger:
- ◆ Fabia II
⇒ [“1.3.2 Summary of components for engine with identification characters BLS”, page 391](#).
- ◆ Roomster
⇒ [“1.4.2 Summary of components for engine with identification characters BLS”, page 394](#).

Continued for all vehicles

- Remove support for exhaust turbocharger with oil return line.
- Place a catch pan under the engine.
- Pinch off coolant hoses with hose clamps -T30096 (3093)- and detach hoses.
- Unscrew connecting pipe between exhaust manifold and radiator for exhaust gas recirculation.
- Unscrew radiator for exhaust gas recirculation from inlet connection.

For engine with engine code BLS

- Remove connecting hose -11- from the vacuum setting element of the circulation flap -14-
⇒ [“2.2.2 Summary of components for engine with identification characters BLS”, page 417](#).

Continued for all vehicles

- Screw out the screws from the exhaust gas recirculation radiator and **remove the radiator**.
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- Installation is carried out in the reverse order. Pay attention to the following:



Note

- ◆ Replace the gaskets and the self-locking nuts.
- ◆ Secure all hose connections with corresponding hose clips.
- Top up coolant
⇒ [“1.7 Draining and filling coolant \(Fabia II, Roomster\)”, page 208](#).
- Checking the oil level:
◆ ⇒ Maintenance ; Booklet Fabia II .



- ◆ ⇒ Maintenance ; Booklet Roomster .

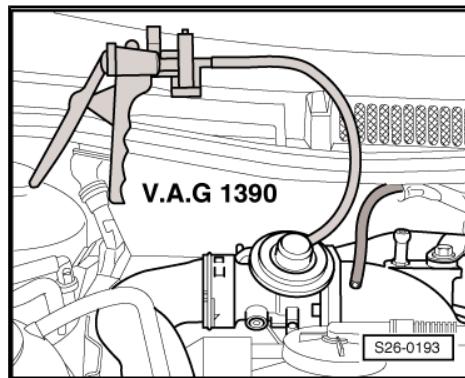
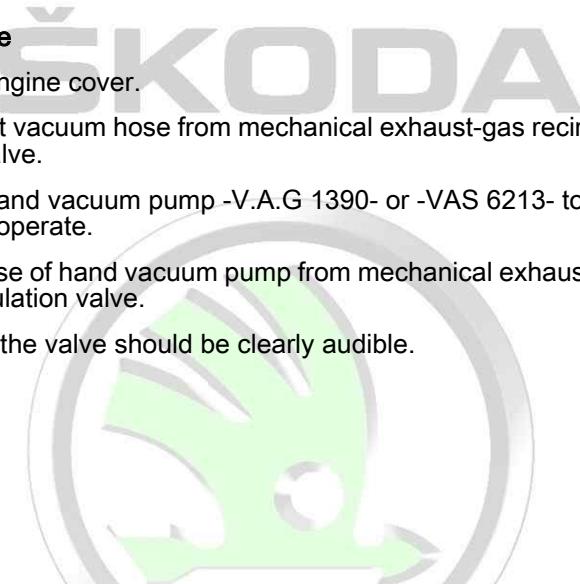
2.6 Checking mechanical exhaust gas recirculation valve for engine with identification characters AXR, BSW, BJB, BKC, BXE

Special tools and workshop equipment required

- ◆ Hand vacuum pump with accessories , e.g. -V.A.G 1390- or -VAS 6213-

Test sequence

- Remove engine cover.
- Disconnect vacuum hose from mechanical exhaust-gas recirculation valve.
- Connect hand vacuum pump -V.A.G 1390- or -VAS 6213- to valve and operate.
- Detach hose of hand vacuum pump from mechanical exhaust gas recirculation valve.
- Closing of the valve should be clearly audible.



2.7 Checking the change-over flap of the radiator for exhaust gas recirculation for engine with engine identification characters BKC, BXE (Octavia II, Superb II)

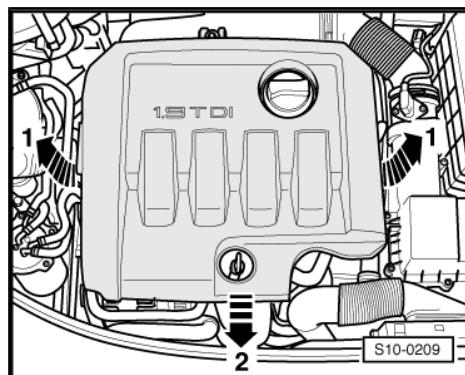
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Special tools and workshop equipment required

- ◆ Hand vacuum pump with accessories , e.g. -V.A.G 1390- or -VAS 6213-

Test sequence

- Lift the engine cover at the sides -arrows 1- and pull out towards the front -arrow 2-.

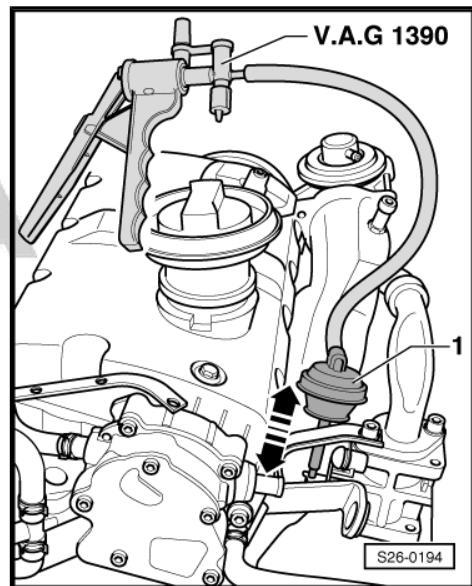
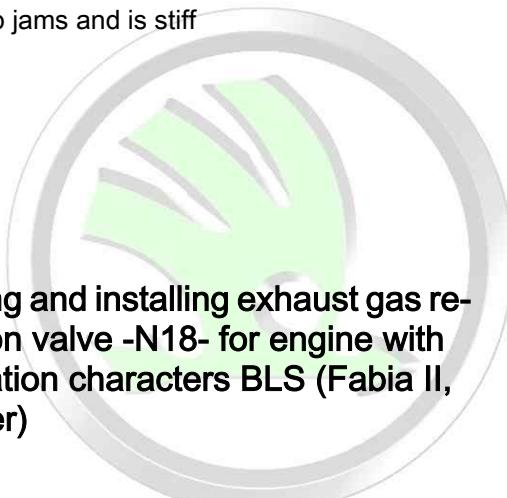




- Detach vacuum hose from vacuum setting element -1- of change-over flap of radiator for exhaust gas recirculation.
- Connect hand vacuum pump -V.A.G 1390- or -VAS 6213- to vacuum setting element and operate.
- The tension rod of the change-over flap of the radiator must move -arrow-.

If the tension rod moves with a sudden motion or does not move at all:

- ◆ The vacuum setting element is defective
- ◆ The change-over flap jams and is stiff

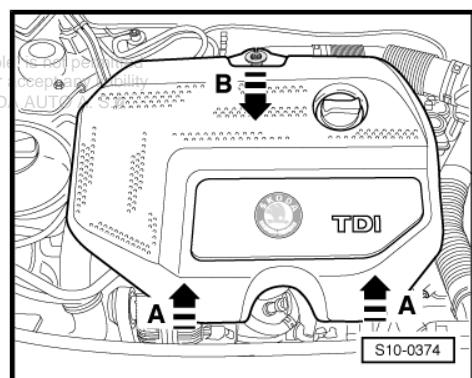


2.8 Removing and installing exhaust gas recirculation valve -N18- for engine with identification characters BLS (Fabia II, Roomster)

Removing

- Lift the engine cover at the sides -arrows A- and pull out towards the front -arrow B-.

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- Remove charge-air pipe at the top -1- with connecting hose -2- -arrows-.
- Remove cylinder head cover
[⇒ "1.3 Removing and installing cylinder head cover \(Fabia II, Roomster\)", page 118](#).
- Remove intake manifold flap motor -V157-
[⇒ "1.3.2 Summary of components for engine with identification characters BXE, BKC, AXR, BSW", page 362](#).
- Unscrew bracket with pressure sensor 1 for exhaust gas -G450- .
- Unscrew the screws of the connection pipe for exhaust gas recirculation from the inlet connection.
- Remove connection fitting with EGR valve -N18- , EGR potentiometer -G212- and EGR control motor -V338- .

Install

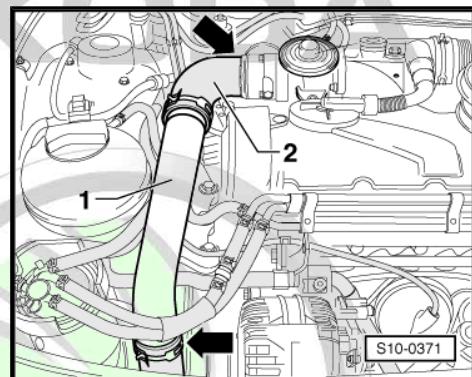


Note

- ◆ Replace the gaskets and the self-locking nuts.
- ◆ Secure all hose connections with corresponding hose clips.
- ◆ All cable straps which are detached when removing, should be attached again in the same place when installing.

Installation is carried out in the reverse order.

- Observe the assembly instruction for hose connections with push-fit couplings
[⇒ "2.11.1 Assembly of hose connections with push-fit couplings", page 334](#) .
- After replacing, adapt new part as follows:
- Switch ignition on and off; then wait 1 minute for the afterrun of the control units.
- Start engine and run in idle for at least 1 minute.
- Interrogate event memory ⇒ Vehicle diagnostic tester, no fault should be stored in the event memory.
- If a fault occurs, erase the event memory and repeat the entire work procedure.





28 – Glow plug system

1 Glow Plug System

- ⇒ “1.1 Removing and installing metal glow plugs”, page 427
- ⇒ “1.2 Removing and installing ceramic glow plugs”, page 427
- ⇒ “1.3 Checking metal glow plugs”, page 428
- ⇒ “1.4 Inspecting ceramic glow plugs”, page 429

Different glow plugs are installed depending on the engine identification characters ⇒ Electronic Catalogue of Original Parts .



Note

- ◆ When working with ceramic pencil type glow plugs the basic handling of the ceramic pencil type glow plugs must be observed ⇒ “3.6 Handling the ceramic glow plugs”, page 7 .
- ◆ The metal glow plugs do not need any special handling instructions.

1.1 Removing and installing metal glow plugs

Special tools and workshop equipment required

- ◆ Flexible-head wrench e.g. -3220-

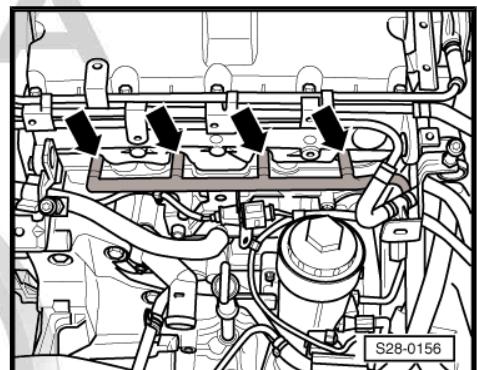
Removing

- Switch off ignition and pull out ignition key.
- Remove engine cover.
- Unplug connector of the glow plugs -arrows-.
- Remove glow plugs using flexible-head wrench e.g. -3220-

Install

Installation is performed in the reverse order, pay attention to the following points:

- Install glow plugs and tighten to 15 Nm.



1.2 Removing and installing ceramic glow plugs

Special tools and workshop equipment required

- ◆ Handheld multimeter - V.A.G 1526 B-
 - ◆ Hose - N 020 150 5- approx. 250 mm
 - ◆ Socket insert , e.g. -3220-
 - ◆ Means for loosening the screwed connections
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Removing

- Before removing, check the ceramic glow plugs in the function “Actuator diagnosis” ⇒ Vehicle diagnostic tester.



- Switch off ignition.
- Remove engine cover.
- Unplug connector of the glow plugs -arrows-.

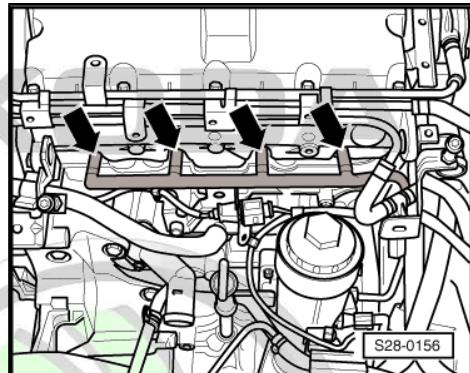
 Note

- ◆ When slackening the ceramic glow plug the maximum permissible torque of 20 Nm must not be exceeded.
- ◆ Always slacken ceramic glow plug with recommended socket insert and torque wrench.

- Carefully slacken glow plug with socket insert e.g. -3220- in accordance with the maximum permissible torque of 20 Nm.

If the glow plug cannot be slackened with max. 20 Nm:

- Use commercially available tool to slacken the screwed connections and repeat the slackening procedure.



 Note

If the glow plug cannot be slackened with this tool from the screwed connections with max. 20 Nm, remove the cylinder head and then unscrew the glow plug.

- Put a long hose -N 020 150 5- of approx. 250 mm onto the loosened glow plug and carefully unscrew in such a way that it does not tilt.
- Pull up the unscrewed ceramic glow plug with hose to avoid any contact and carefully place down.

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Install

 Note

Threads of cylinder heads and glow plugs must be clean and dry, free from oil and lubricant.

- Clean holes for glow plugs in cylinder head from fixed combustion residues.
- Screw ceramic glow plugs into the holes and lightly tighten by hand.

 Note

- ◆ Observe maximum permissible torque for ceramic glow plugs of 12 Nm (thread clean and dry, free of oil and lubricant).
- ◆ In case of non compliance there is a risk of breakage of the pin, which can always lead to severe engine damage.
- Tighten the ceramic glow plugs with the recommended socket insert and with a torque wrench to max. 12 Nm.

Inspect the installed ceramic glow plugs before the first engine start.

1.3 Checking metal glow plugs

Special tools and workshop equipment required

- ◆ Handheld multimeter - V.A.G 1526 B-

Test conditions

- Ignition off.

Test sequence

- Unplug connector of the glow plugs.
- Connect handheld multimeter -V.A.G 1526 B- for resistance measurement between contact and glow plug housing.
- Nominal resistance value: less than 1Ω

If the specified resistance value is exceeded (greater than 1Ω), then the glow plug is defective.

- Replace defective glow plug
⇒ “[1.1 Removing and installing metal glow plugs](#)”, page 427 .
- Check glow plugs one after the other in all cylinders.
- Re-insert pulled out plugs of glow plugs.

1.4 Inspecting ceramic glow plugs

Special tools and workshop equipment required

- ◆ Handheld multimeter - V.A.G 1526 B-

Test conditions

- Ignition off.

- Unplug connector of the glow plugs.
- Connect handheld multimeter - V.A.G 1526 B- for resistance measurement between contact and glow plug housing.
- Specified value: less than 1Ω
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If the specified value is exceeded (greater than 1Ω):

- Remove ceramic glow plug and check if the pin is not broken off.



Note

In case of breakage of the ceramic glow plug pin all broken pieces must be removed from the cylinder before starting the engine, otherwise this could result in engine damage due to seizures. If required, the cylinder head must be removed.

- Re-connect electrical plug connections for glow plugs.
- Before the first engine start check the installed ceramic glow plugs via the self-diagnosis ⇒ Vehicle diagnostic tester.
 1. Query and erase event memory of engine control unit. Do not start the engine!
 2. Performing self-diagnosis.
 3. Interrogate the event memory of the engine control unit again. Do not start the engine!



Note

The engine must not be started as long as a fault concerning the ceramic glow plugs is stored in the event memory!



- Check electrical wiring and plug connections for glow plugs.

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